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ABSTRACT

The purpose of this project was to develop a transitional instructional program to serve out-of-school and drop-out American Indian youth entering vocational education programs in forest technology, fire science, heavy equipment maintenance and health occupations. The project was designed to develop a 3-quarter transitional program concerned with the development of basic skills, career planning, an introductory core in 2 career area clusters, work experience of both a general and vocational nature, and work habits. It involved the recruiting of 20-25 Indian youth per quarter to start into the 3-quarter sequence. This project provided seed money to: (1) open access to college programs to Indian students; (2) develop transitional core programs allowing undecided students to explore career possibilities in the Mountain Oriented Occupations and Health Related Occupations. The report also explained the curriculum development techniques utilized by the project. Covering fire science, forest technology, and heavy equipment maintenance, 92 behavioral objectives were given. Of these, 51 were core content for all 3 areas. These objectives were then evaluated for strengths and weaknesses, using reports submitted by the instructors. Additionally, subjects, purposes, and teaching patterns were given for hospital building maintenance and health occupations to both interest and motivate students. (EE/KM)

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INDIAN EDUCATION AND TRAINING OPPORTUNITIES

AT

COLUMBIA JUNIOR COLLEGE

Columbia, Calif.

A Vocational Education Project under the
Vocational Education Amendments of 1968.
PL 90-576 Part A Section 102b
Programs for the Disadvantaged Persons.
Fiscal Year July 1, 1970 - June 30, 1971
Fiscal Year July 1, 1971 - June 30, 1972

[1973]

RC 007578

PREFACE

The transitional program to open access to vocational programs to students of Indian heritage in the Columbia Junior College service area offered a unique opportunity to tailor make program and services to meet the special needs of one group of local citizens. From the first program design, this program has grown and changed to provide services on a continuing basis for Indian students.

The project would never have come to fruition without the dedicated contributions of those involved. These included:

Project Development

Robert Deal, Associate Dean of Instruction, Occupational Education

Overall Administration

Ransom Dick, Coordinator of the VEA Project and Coordinator of Indian Education

Continuing Services to Students

Gary Robles, Coordinator of Services to Indian Students

Barbara Painter, Counselor

Paul Becker, Dean of Student Services

Curriculum Development

Irving Cobb, Instructor in Forest Technology

McKinley Frost, Instructor in Fire Science and Heavy Equipment

Lester Kocher, Instructor in Heavy Equipment

Francis Hegewein } Consultants in Health Occupations
Patricia Rucker }

Glenn Wittenburg, Consultant in Building Maintenance

Jon Hagstrom, Instructor in Reading and Study Skills

Jack Ross, Assistance to Curriculum Development Team in Curriculum Design and Evaluation

Patricia C. Hertert, Project Monitoring and Student Follow-up

To all those listed above, and even more important, the Native American students enrolled in this project, the college is most grateful. We feel that a blueprint for educational opportunity has been developed.

President

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INTRODUCTION

Transitional programs for disadvantaged students in the Yosemite Junior College District have been offered at Modesto Junior College and Columbia Junior College with each program designed to meet the special and peculiar needs of students residing in each college service area. These projects were funded under the Vocational Education Amendments of 1968, Public Law 90-576, Part A, Section 102B, Programs for the Disadvantaged Persons and have been included as an integral part of the District's master plan for vocational education.

The transitional program for Indian Youth at Columbia Junior College was funded in two parts: the first portion was funded for the year July 1, 1970 through June 30, 1971; the second section was funded for the following year July 1, 1971 through June 30, 1972. A follow-up study of all students of Indian heritage, including those enrolled during the project, was completed in April of 1973 and is included in this report.

A DESCRIPTION OF THE PROJECT

Purpose

The purpose of this project was to develop a transitional instructional program to serve out-of-school and drop-out Indian youth entering vocational education programs in Forest Technology, Fire Science, Heavy Equipment Maintenance and the Health Occupations.

Objectives

The project was designed to develop a three-quarter transitional program concerned with the development of basic skills, career planning, an introductory core in two clusters of career areas, work experience of both a general and vocational nature and the development of work habits. It involved the recruiting of twenty to twenty-five Indian youth per quarter to start into the three-quarter sequence. Instructors were requested to develop introductory core courses in the selected vocational areas. Students were to be provided with financial aids to assure that they were able to participate in the program and thus qualify for vocational training. Tutoring assistance and counseling services were to be provided where required or needed. Staff members were to work with the feeder high schools in a drop-out prevention program aimed at Indian youth in Tuolumne, Calaveras, Alpine and Mariposa Counties. Administrators were to analyze the experience gained in this project to modify it to better meet the vocational education needs of Indian youth in the mountain counties.

Time Span

The project was divided into two sections and funded over a two-year period. The first was fiscal year 1970-71, the second was fiscal year 1971-72.

Resources

The college drew upon a wide variety of resources, both local and statewide, in order to support the project.

Services of regular, part-time and new staff members were enlisted. District level staff developed the project and obtained funding for two fiscal years. Some college staff members were employed on part-time claims and released time was provided for others. A project coordinator of Indian heritage was employed and services from college administrators, counseling and financial aids supported the program.

Assistance in recruiting was obtained from area Human Resources Development offices as well as from state level Bureau of Indian Affairs personnel. Community personnel in schools, government offices and tribal councils offered assistance in publicizing the program and encouraging students to take advantage of this opportunity.

Financial resources were provided by the Chancellor's Office using VEA funding for the project. The Bureau of Indian Affairs supplied living allowances and educational costs for the students. The college furnished facilities and equipment for use in the instructional program.

Project Accomplishments

To identify the accomplishments of the project, college staff have sought to answer the following questions:

1. Did the college open access to its programs to Indian youth?
2. What has been the result of the curriculum work? Is it being used?
3. What is the status of the instructional material developed as part of the project? Is it being used?
4. To what extent does the college intend to proceed on the core exploratory approach?

1. Access to college programs to Indian Youth

Prior to the advent of the Part A Project - Transitional Program for Indian Youth in Mountain Oriented Occupations, funded under the Vocational Education Act in 1969-70, records show an enrollment of one student of Indian heritage at Columbia Junior College. With the work done under VEA, enrollment increased to 30 during the 1970-71 year. With the expansion of efforts into the general education and transfer programs through SB 164, enrollment in these aspects of the program also increased to its present level. A detailed analysis of the characteristics of all Indians having attended Columbia Junior College through Fall Quarter, 1972, is included in the next section of this publication.

2. The results of curriculum work

The initial curriculum work was concerned with the identification of a core of related information pertaining to mountain oriented occupations. Exploration of this core material was designed to assist students to make an assessment of the career potential in these occupations. Three vocational instructors participated in this developmental work. Two of these are currently teaching at the college and the material developed by the third is being utilized in the ongoing heavy equipment program. When the low level of enrollment could not justify the offering of the exploratory program as a core class within the regular offering of the vocational curriculum, these instructors integrated as much of the course material and related instructional materials into the introductory or beginning courses of each occupational area as possible.

2. (continued)

In the health occupations, instructional materials gathered and organized during the project have been merged into the initial phases of instruction for the LVN program. Slide and tape materials gathered to present the history and the scope of the medical family are also used with beginning nursing classes. Indian people seeking training as Family Health Workers in the local Indian community will be absorbed into ongoing programs of first aid and vocational nursing. Occupational information outside the realm of nursing will be made available through the career education collection in the Learning Skills Center.

3. Status of the instructional materials developed and its current use

As noted above, a great deal of the material developed during the project is currently being utilized in beginning level courses in the Mountain Oriented Occupations and in the beginning levels of the LVN course. A number of items concerned with career information and conditions for career choice were also included in the course information. The development of a Career Information collection in the Learning Skills Center is now under way. The director of that program is responsible for the development of the career collection and arrangements for its use, and has been provided a copy of the work done. He will arrange for the duplication of materials which he feels would be useful to add to the collection to make them available to students on a continuing basis. A course in Career Planning has also been developed and is currently under review by the Curriculum Committee. Information from the project will also be used for students enrolled in this course.

4. Plans for the Exploratory Core Program

Sufficient student interest to offer the exploratory core program on an ongoing basis does not exist at the present. The advisability of segregating Indian students into this exploratory program was questioned by the Accreditation team and the diversity of skill levels among the enrolled Indian students supported this point of view.

Discussion has been held with high schools in Tuolumne County as to the possibility of offering this program through the high schools for all interested students. This is not feasible at the present time because of the rotating schedule. It is impossible to utilize college staff in the changing time schedule. Articulation efforts in the areas of Heavy Equipment and Construction are now under way. Out-of-county secondary schools not now functioning on a rotating schedule have indicated an interest in utilizing the introductory core program and this possibility will be explored for the next school year.

SUMMARY

In summary, this project provided seed money to accomplish two things:

1. To open access to college programs to Indian students.

   With a combination of college efforts assisted through additional funding by VEA and SB 164, a growth of Indian students enrolled in regular programs has been noted over the last three-year period. Services to Indian students are now financed by VEA Part B, set aside funds for disadvantaged. Growth in the number of Indians from local tribes will also be noted. A greater number of continuing students will be noted and drop-out after one quarter of enrollment has been substantially reduced.

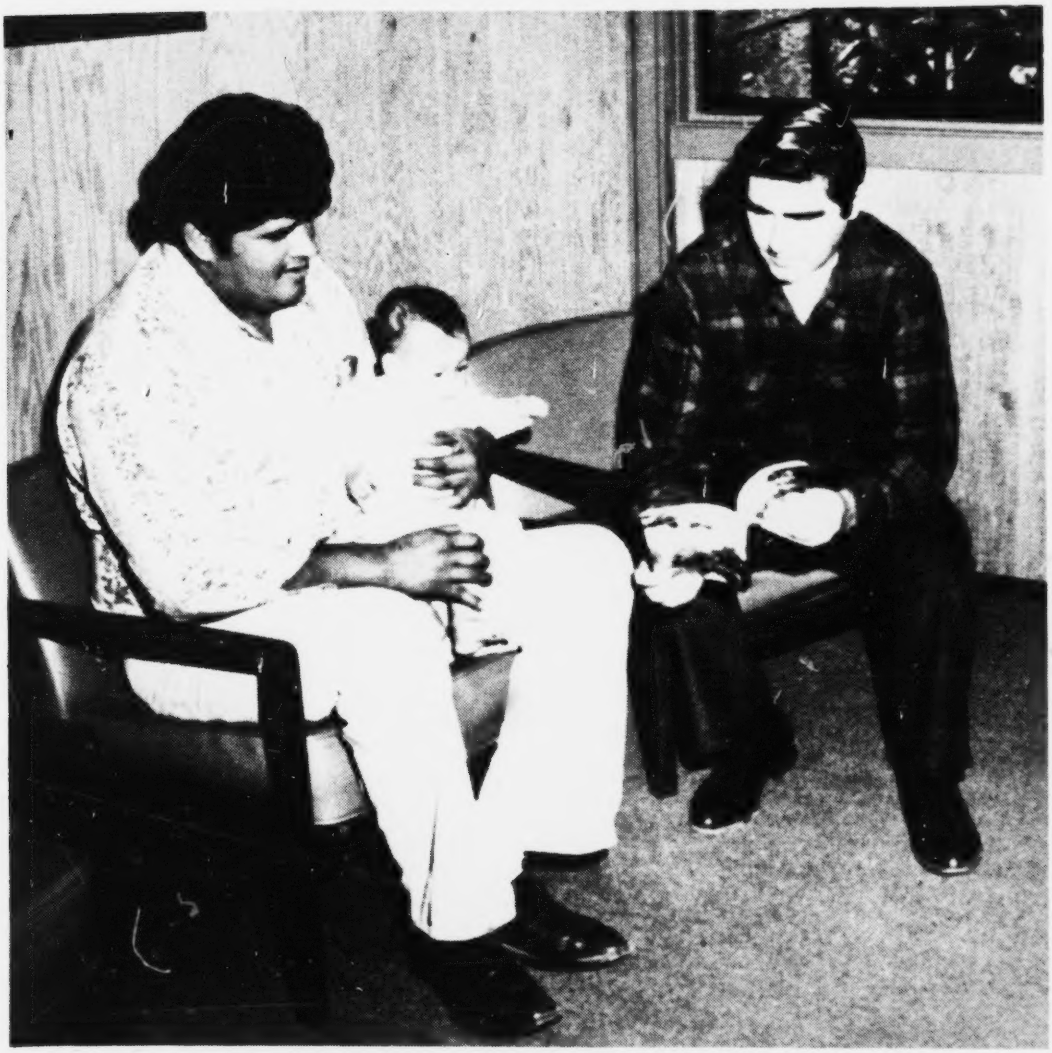
SUMMARY continued...

Evidence that the Indian community sees a source of training and technical assistance resources in the college continues to mount as requests are made to the college to assist Indians in carrying out their own programs such as those pertaining to waste water treatment, use of by-products for economic development and conservation and management of tribal lands.

All necessary agreements and accreditation reports to allow Indian people to qualify for ongoing program assistance through the Bureau of Indian Affairs have been completed as a result of these special funds.

2. To develop transitional core programs allowing undecided students to explore career possibilities in the Mountain Oriented Occupations and Health Related Occupations.

   Although the original premise of an exploratory core program for college level students who were undecided on future career choices does not appear to be feasible with existing financial restraint on class size, much of the content and materials developed have been integrated into beginning level courses in the ongoing college programs. The development of a collection of career information materials and the design of a career planning course will be helpful in channeling this information to students. The possibility of taking the core program as a prevocational program to high schools in the area is currently under discussion.



Characteristics of Students
and
Institutional Problems

EDUCATION FOR STUDENTS OF INDIAN HERITAGE AT COLUMBIA JUNIOR COLLEGE

One hundred and fifty years ago, the western slope of the Sierra was the home of numerous bands of Indians. Connected to each other by well-worn trade routes wending their way through the mountains on the east and the great valley on the west, these Indian groups went about their daily life governed by the seasons. The cry of gold brought thousands of transient adventurers to the Indians' traditional homelands and started a chain of events which led to the current conditions in which Indians find themselves. As in other areas, the Indians of Tuolumne County were forced from their seasonal campsites as the settlers laid claim to the earth. Where they had been free to hunt and gather foodstuffs from throughout the area, they soon found it necessary to plant and tend gardens to assure a source of food to sustain them through the winter months. Moved from settlement to settlement as land was bought and sold, they ultimately moved into smaller towns and hamlets and gradually merged into the general population mix. With the passing of the elders, old tribal ways disappeared and in their place came some of the promise of a better life. For many, the promise never came to pass, but in its place came forced dependency on community agencies to provide a meager standard of living.

Access to education has not generally served the purposes of the Indians of Tuolumne County. As with non-Indian children, in past years the economy was such that few opportunities existed in the local economy and the young left the community. To enroll in higher education required leaving the county. Only a few Indian youth had this opportunity; thus the majority entered into the seasonal work force. Efforts to train Indians outside the community too often required that the individual must leave the mountains to find a hiring hall for his new found skill, for the skills learned were not often found in the home community.

In 1968, Columbia Junior College came into being. For the first time, the opportunity to embark on a college education within commuting distance became available. With its emphasis on mountain-oriented occupations, the possibility of being trained in an occupation which could be practiced in the home community came into being. Of the first 300 students enrolled, one was an Indian from the local community. Because of this very limited participation, the decision was made to design a specialized program which would bridge the gap between the college and the Indian community and thereby open access to local education programs on a continuing basis.

The first step was the development of an advisory committee in which members of the Indian community were invited to participate. This committee identified gaps in program and services pertaining to the special needs of Indian youth. These included: financial problems, housing, need for basic skills, drop-out rate of Indian youth attending high schools, and transportation.

The following areas were selected for development:

1. Financial aids.
2. Provide for living costs, transportation, college expenses and emergencies.
3. Tutoring for college students to provide for additional help for disadvantaged students, and as potential work experience stations for students who qualify for special help.

4. Tutoring for high school students at the MiWok Rancheria to assist them in basic skill development, raise the level of aspirations towards college, and develop potential work experience stations.
5. Develop upward bound program for Indian children, including recruitment, specialized assistance in school work, and big brother relationship to junior college students.
6. Develop community improvement program for Indian community, to include basic skill development, means for community improvement, specialized program concerning Indian culture and strengthening of Indian identity.

The second step was to design a transitional program which concentrated on enrolling Indian youth in occupational programs which would allow for placement in the local work force on a continuing basis. This thrust is described in detail in the publication "Indian Education and Training Opportunities." In order to update the final report of the Transitional Program for Indian Youth in Vocational Education, college staff have sought to answer the question, "Is there now open access to college programs for Indian youth?"

Enrollment of Indians in College Programs

As noted above, in 1968 one student of Indian heritage was enrolled in the college. A check of student records reveals that as of fall enrollment, 1972, a total of 61 students of Indian heritage have enrolled in college programs.

Enrollment Patterns

Enrollment patterns of students of Indian heritage generally fall into three categories: (1) those who enroll for a single quarter and either drop after the quarter or do not complete the quarter, (2) those who enroll for one or more quarters but who do not continue in school, and (3) those who enroll and make continuous progress toward a certificate or degree or who are seeking to transfer to a four-year institution.

TABLE I

ENROLLMENT PATTERNS OF INDIAN STUDENTS

By Quarter	1968-69			1969-70			1970-71			1971-72			1972-73
	F	W	S	F	W	S	F	W	S	F	W	S	F Only
1 quarter only	1	0	0	1	3	2	12	14	20	34	31	31	26
Continuing	0	0	0		1	2	3	12	10	15	23	27	18
Total Individuals	1			3			24			46			26
1 Quarter Only	1			0			8			10			8 new
Continuing	0			3			16			36			18

A summary of student records indicates that there has been a steady growth in the number of students of Indian heritage enrolled in both part-time and full-time courses over the past four-year period.

TABLE II

COMPLETION RATES OF 1 QUARTER ENROLLEES

1 Quarter Enrollees	1968-69			1969-70			1970-71			1971-72			1972
	F	W	S	F	W	S	F	W	S	F	W	S	F
Completed Quarter	1	0	0	0	1	0	0	0	1	2	0	1	
Dropped prior to completion	0	0	0	0	0	0	0	1	7	5	1	0	
Total	1			1			9			10			

Students enrolled in one quarter predominate the group who withdrew prior to completion. Those enrolled in Spring of 1971 and Fall of 1971 for a single quarter were entirely made up from students assigned to the transitional program. As a result of this high drop-out rate, two modifications were made: (1) selection procedures for students funded by BIA were modified and attendance reporting to that agency was improved, and (2) the transitional program as a prevocational segregated program was eliminated and the content merged into the introductory levels of each vocational program. The problems which led into these modifications are described in detail in "Indian Education and Training Opportunities," pages 5 through 16. Nine students enrolled in the transitional program entered the regular program to continue their studies.

Program Enrollments

The emphasis of the transitional program was entry into vocational programs. BIA has provided financial assistance through the 959 program for students enrolled in vocational programs since 1970. A summary of major fields of study for the 61 enrollees is as follows:

Orientation to Mountain Occupations This program involved a career exploration core in the fields of heavy equipment, natural resources and fire science. Since these students only participated in the exploratory phase and did not select a specialty they are reported here.	10
Heavy Equipment Maintenance	21
Crime Prevention	2
Licensed Vocational Nurse	1
Business Ad. and Office Occupations	4
Fire Science	4
Natural Resources	2
Various Mountain Occupations	1
Vocational	35
General Education	16
TOTAL	61

Progress in College Work

A summary of Grade Point Averages earned as of Fall, 1972, reveals the following:

TABLE III

CURRENT CUMULATIVE G.P.A.

G.P.A.	No Credit	0-1	1-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00-3.99
Number of Students	10	9	1	7	14	12	8

No Credit

Ten students who enrolled in the Transitional Program for which no credit was given. They did not continue on with college work.

0-1 G.P.A.

Nine students received no college credits which are converted into grade points. Of these, seven enrolled in programs and withdrew prior to completion. Two students completed the course but were doing unsatisfactory work at the time of completion.

1-1.99 G.P.A.

Nine students have a GPA of between 1 and 1.99 which by college grading standards means their cumulative grade point is below average. Three of these transferred in deficiencies from other colleges and were seeking to overcome them. Four students showing a grade point deficiency had dropped out of college by Fall of 1972. Four others were still enrolled. Two additional students show a previous deficiency which they were able to overcome.

2.00-2.99 G.P.A.

Twenty-six students are in the 2.00 to 2.99 or average progress classification. Of these, two had previously been on scholarship probation and had improved their average. A check of transcripts indicates that eight students in this group have been on the Dean's list for one or more quarters since their enrollment at Columbia Junior College. This signifies that for that quarter their grade point average was between 3.0 and 3.74.

3.00-3.99 G.P.A.

Eight students have cumulative G.P.A. of 3.00 or more.

In summary, students of Indian heritage have demonstrated that their academic progress as measured by cumulative G.P.A. is comparable to that of non-Indian students at Columbia Junior College. Even though some brought scholastic deficiencies with them when they entered the program, 68.6 percent of those enrolled in credit programs have a 2.00 or above G.P.A. at this time.

Units Completed

Units completed indicate the rate of progress toward the 90-unit completion requirement of the two-year degree program.

TABLE IV
UNITS COMPLETED

Units	0	1-19	20-39	40-59	60-79	80-99	100+
Number of Students	18	19	12	5	4	2	1

0 Units

As will be noted elsewhere in this report, 10 students were enrolled in the transitional program for which units were not awarded. An additional eight either did not complete graded classes or were enrolled in ungraded courses.

1-39 Units

Thirty-one students have completed units of less than one year of college work. This group is made up of students who are relatively new to the program or not taking a full-time load.

Eleven students have completed the first year program and are moving toward the 90-unit degree level. It should be noted that students receiving BIA funding are required to take a full load and make satisfactory progress toward their goal. The number of quarters a student can receive assistance is limited.

Units Completed in Major

TABLE V

UNITS COMPLETED IN MAJOR IN VOCATIONAL PROGRAMS

	0	1-15	16-30	31-45	46 +
Orientation	10	-	-	-	-
Heavy Equip.	2	7	4	3	5
Crime Preven.	1	1	0	0	0
LVN	0	0	0	0	1
Bus. Ad. & Off.	0	2	2	0	0
Fire Science	2	1	1	0	0
Nat. Resources	1	1	0	0	0
Var. Mountain	0	1	0	0	0
TOTAL	16	13	7	3	6

Heaviest enrollment in vocational programs will be noted in the area of Heavy Equipment. Most students take courses in their major only; however, a number of those enrolled in Heavy Equipment have also taken courses in Fire Science and Natural Resources Technology to broaden their capabilities in these interrelated areas. A certificate can be awarded upon completion of 30 units in the field of the major. Nine Indian students have received the certificate or were eligible to receive it as of Fall, 1972.

Characteristics of Students Enrolled

Sex

Of the 61 students of Indian heritage enrolled as of Fall, 1972, 48 were male and 13 were female.

TABLE VI

AGE BY SEX

	Male	Female	Total
Unknown	1	0	1
Teens	5	6	11
20's	33	5	38
30's	5	1	6
40+	4	1	5
	48	13	61

Two of the males in the 30 to 40 range and four of the males in the 40+ range were referred through BIA for the transitional program and because of the rapid drop-out of these men, modifications in selection procedures, as previously described, were made.

Full-time vs. Part-time Enrollment

Students of Indian heritage are primarily involved in full-time study. Of the 61 individuals involved, only seven show less than full-time during their last quarter of enrollment. BIA regulations require full-time enrollment for students receiving support through that agency. The small number of part-time and older students would tend to substantiate the point of view that the potential continuing education student body is not being reached.

Previous Education

A check of transcripts reveals a substantial number of students of Indian heritage do not have a reported date of high school graduation. Of the 61 students, 37 fall into this category. Twenty-four show a date of high school graduation. This is found in both the men and women and for the younger students, as well as the older ones. Six students have taken college level work or high school classes through the continuing education program toward completion of the high school diploma. Eight students show enrollment of other colleges prior to enrollment at Columbia Junior College. Five of these had earned high school diplomas and three had not.

Tribal Affiliation

Twenty-six of the 61 students enrolled are from tribes which are native to the Central California foothill region. Nine students were from other California tribes. Three were from other U.S. tribal affiliations and 23 reported as Indians were unknown.

The heavy enrollment of students from local region tribes would seem to indicate that a bridge between the college and the Indian community has been established. Although there was initial concern that the program served Indians other than the local populace, this does not seem to be the case at the present time.

Extended Family

Within the enrolled students is an intricate maze of family relationships. It is not uncommon to see two or three family names related to one student in the early enrollment group. A husband and wife, parent and child, or siblings may also be enrolled in some program at the college. This would seem to substantiate the view that once a group of local students have found success in a college program, they will communicate their experience to others, thus serving as an avenue of information and recruitment. One additional advantage of extended family enrollment is relative ease of securing follow-up information on dropouts and transfers or jobouts.

Participation in Student Activities

One of the objectives of the transitional project was to encourage Indian students to participate in ongoing student activities. One outgrowth of this effort has been the organization of an Indian Student Club. All Indian students are, or have been, members of the Indian Student Club. The degree of active participation in club activities depends entirely on interest in the activity planned for a given meeting. When meetings pertained to a visitor from BIA concerning funding, there was 100 percent attendance. Few meetings have been intended for social gatherings. This probably accounts for the fact that few non-Indian students have participated in Club activities. To date, there has been little participation in other student activities. Some on-campus activities in which Indian students have participated are as follows:

1. Membership and leadership in the Indian Club.
2. Recruitment teams for students interested in enrolling in vocational majors.
3. Nomination for various scholarship awards.
4. Tutoring for various vocational education programs.
5. Participation in Columbia Junior College recreation baseball team for Indian students.
6. Involvement in reconstruction project of historical Round House on Columbia Junior College campus.
7. Peer counseling for Indian students and other students.

The students as a group appear to be heavily involved in a variety of activities which pertain to Indian affairs and community affairs in general. These include:

1. Membership in Tribal Council and participation in the activities at the Rancheria and other MiWok Indian activities.
2. Membership and participation in a variety of social, cultural, and political activities which include:
   a. The California Indian Education Association.
   b. Cultural Recreation Team (Indian Hand Game).
   c. Indian Dance and Cultural Group (Chetonska Dances).
3. Membership in union organizations affiliated with former occupations prior to student days.
4. Working with housing and sanitation problems of Indians on Rancheria.

5. Participation in athletic activities, i.e. baseball teams, coaching Little League and Pee Wee teams.
6. Membership and participation on Regional Indian Rural Health Board representing Tuolumne, Calaveras, and Amador counties.
7. Membership in churches and related church activities.
8. Seasonal and part-time employment off campus.

The Relationship of College Enrollment to the Availability of Financial Aids

Sources of Financial Assistance

A review of financial aids records show that students have received assistance from the following sources:

1. Educational Opportunity Grants	20 students
2. National Deferred Student Loans	4 students
3. College Work Study	1 student
4. Bureau of Indian Affairs	34 students
5. Extended Opportunity Program (SB 164)	8 students
6. Scholarships	4 students
7. Veterans Administration	1 student

The largest source of assistance is Bureau of Indian Affairs. In the last six quarters the number of students receiving BIA assistance each quarter varied from 13 to 19, depending on the training slots available to that agency. Wherever possible, financial aids are "packaged" to help students maintain their enrollment in college programs on a continuing basis. It should also be noted that 13 students have received no financial assistance during their enrollment in college programs.

Financial Aids As a Factor in Continuing Enrollment

A comparison of the enrollment information with financial aids information would seem to indicate that the availability of financial aids is an important factor in continuance in the program. Of the 61 students enrolled, 43 received financial aids during some period of their enrollment. Eighteen did not receive any financial aids. Twenty-four of those receiving financial aids continued for two or more quarters of enrollment. Six were enrolled for two or more quarters and received financial aids only two quarters of their enrollment. Thirteen were enrolled for one or less quarters and received financial aids during that period of time. Of those who did not receive financial aids, eight were enrolled one or less quarters and ten were enrolled in two or more quarters. Seven sources of financial aids were utilized by these students.

Present Whereabouts of the Students

Students generally fall into one of four groups:

Continued Enrollment		25
at CJC	23	
transferred	2	
Working		4
Dropped School		32
The number of those who are now working is unknown at the present time.		
TOTAL		61

As will be noted in Table I, page 10, 26 students enrolled in one quarter only and these account for two-thirds of those who dropped or are currently working. Although the number of students continuing in enrollment is increasing each quarter, this drop figure would seem to indicate that additional work needs to be done with those students who enroll a single quarter.

Why Students Dropped

A follow-up contact of 19 of the students who dropped out reveals the following reasons:

1. Inability to do course work.
2. Overwhelming non-learning problems which interfered with regular attendance, including:
    a. legal problems - detention, probation
    b. alcohol and other drug problems
    c. financial problems
    d. medical problems in family
3. Lack of direction or apathy reflected in poor attendance.
4. Dissatisfaction with program.

In some cases, the college lacks the necessary services with which to assist students to stay in school. This lack is primarily noted in the more complex non-learning problems. In those areas where the college does have resources available to assist students to continue, increased attention would seem to be required to identify problems early in the course of enrollment and work with the student accordingly. The first indicator of lack of interest appears to be irregular attendance. A detailed description of the problem areas will be found on page 32 of this section.

The College As a Resource to the Indian Community

During the past several years, MiWok Indian Tribal groups have met with college staff to discuss various projects to be undertaken by the Tribal groups pertaining to economic and cultural development. By this means the college has served as a source of technical assistance available to them.

Through this means college staff have (1) provided assistance in developing project applications, (2) served as a sounding board concerning long-range plans, (3) participated in planning sessions for joint projects, (4 served as a training institution, and (5) served as a source of reference materials.

In an effort to provide resources to both students and the community, the college has sought to develop its library collection with works which will help to strengthen the identification of this group with its cultural heritage through expansion of the current collection to increase the number of examples of literature written by Indian authors, expansion of the current collection to include a broader representation of the historical and cultural heritage of the Indian group, and expansion of the current collection to include works of authors in various fields who are of Indian heritage.

Projection for the Immediate Future

Recruitment of Completing High School Seniors

Visitation to high schools in the Yosemite Junior College District service area indicates that there are approximatley 10 Indian students from this area who are planning to graduate from high school in June, 1973. The number of leavers from the high school could not be ascertained by actual count. The Coordinator of Services to Indian Students plans to spend a few days during Spring break to visit the high schools again to talk particularly to seniors about Columbia Junior College attendance next fall. He will also invite these students to visit the campus during their Easter break so they can see the campus activities.

To date, students from Tuolumne and Calaveras counties have been contacted. Plans to contact potential students of Indian heritage in Mariposa, Inyo, and Amador counties to discuss the college with prospective students there are now being developed.

With the information now available, an estimated 20 students of junior college age may be expected for Fall, 1973. This seems to be a realistic number to expect continued BIA funding.

Increase in Continuing Education Clientele

A greater number of adults of Indian heritage seem now to be expressing an interest in coming to the college. An increase is expected in the number of adults who may benefit from the skill development courses prior to their taking the GED test for high school equivalency.

Implications for Further Program Development

The experience of the past four years has proven that it is possible to open access to Indian students from the local service area through a concentrated program of (1) establishing liaisons with agencies providing services to Indians, (2) developing programs to meet the needs of students with limited educational backgrounds, and (3) providing services which will assist students to solve problems which interfere with successful continuance. Implications of the data gathered are as follows:

1. Work with elementary and secondary schools in dropout prevention is required if students are to have an adequate educational foundation to participate successfully in college level programs. The high proportion

1. Continued

   of non-high school graduates would seem to indicate that much work needs to be done at the secondary level to reduce current dropout rates.

   In some cases, student records indicated no high school experience. This would imply that work must be done in the elementary grades to convince both children and parents of the need to stay in school in order to compete in today's world.

2. Work in the elementary and secondary schools to encourage students to consider college enrollment as an option open to them in the future. With the establishment of Columbia Junior College, this option is now available close to home and at a relatively low cost.

3. Continued attention must be given to reducing dropout of students enrolled for one quarter only regardless of the reason for the drop. This would seem to indicate a need for more immediate identification of students with problems and more rapid referral of students to services and programs which can assist them to resolve or lessen the importance of the problem as it affects continuation in their college work.

   If students do take the option to drop full-time class enrollment, an organized information program concerning opportunities through continuing education should be developed and instituted.

4. The level of academic success for Indian students is no different than it is for non-Indian students. Students are primarily engaged in full-time study.

5. Although this group seems heavily engaged in school and community activities, these are carried out as a group apart from other college students. Opportunity of inter-cultural exchanges should be strengthened so that the Indian community can participate comfortably with the non-Indian community and so that other students will gain an appreciation of the strengths of the Indian heritage.
6. The preponderance of students enrolled in full-time study reflects the dependence of this group on financial assistance which requires a full load for eligibility. Enrolled students should be made aware of opportunities for part-time study through the continuing education program in the event they are forced to work and drop full-time study.
7. The limited number of students in the teens age group would indicate there is a lack of continuity between high school completion and college enrollment. The preponderance of students in their 20's would seem to indicate that there is a gap between these two levels. Active recruitment at the high school level needs to be strengthened and a "can do" attitude communicated from college students to high school students must be established.
8. Heaviest enrollments are in non-transfer vocational programs. While completion of these programs may be in the best interests of many students, care must be taken to assure that students with high potential for upper division work are encouraged to prepare for that goal and that services which will allow them to reach this goal are provided. The student who has completed a vocational program needs to know that he may take additional work toward transfer or completion of the AA degree through the continuing education program should he change his goal.

9. Although inroads have been made in opening access to full-time programs for Indian youth, indications are that the program is not reaching the continuing education population and continued efforts must be made in this regard. The existing extended family network should be assessed as an avenue of information for potential part-time enrollees.
10. The services of the college as a resource to the Indian community must be strengthened and expanded if the true role of the college as a community college is to be achieved.

On the following pages are:

TABLE VII - ENROLLMENT PATTERNS

TABLE VIII - PROGRESS IN COLLEGE WORK

TABLE IX - PERSONAL CHARACTERISTICS

TABLE X - FINANCIAL AIDS ASSISTANCE

TABLE XI - FOLLOW UP INFORMATION

TABLE VII--ENROLLMENT PATTERNS

	SEX		1968-69				1969-70				1970-71				1971-72				1972-73				TYPE OF PROGRAM				Full-time or Part-time	MAJOR
	M	F	F	W	S	SS	F	W	S	SS	F	W	S	SS	F	W	S	SS	F	W	S	SS	Vocational	General	Remedial	Adult		
1	X												VE										X				FT	Orientation
2	X												VE										X				FT	Orientation
3	X															E	X						X				PT	Heavy Equipment
4	X															E D	X		X				X				FT	Heavy Equipment
5	X										E	X	X	X	X	X	X		X				X				FT	Heavy Equipment
6	X										E	X	X		X	X	X						X				FT	Heavy Equipment
7	X							E	X		X	X	X		X	X D	X	G					X				FT	Heavy Equipment
8	X										E	X	X		X	X D	X						X				FT	Heavy Equipment
9		X					E	X	X		X	X	X		X	X	XD		X D				X				FT	Vocational Nursing
10	X										E	X	X		X D	X	X		X				X				FT	Heavy Equip. & L.E.
11	X														VE D	X	X						X				FT	Heavy Equipment
12	X															E	X						X				FT	Office Occupations
13		X																	E					X			FT	General Education
14	X												VE		X	X D	X		X				X				FT	Heavy Equipment
15		X													F									X			FT	General Education
16		X																	E				X				FT	Crime Prevention
17	X														VE	X	X						X				FT	Heavy Equip./Gen.
18		X																	E					X			FT	General Education
19	X												VE										X				FT	Orientation
20	X												VE										X				FT	Orientation
21	X										E	X	X		X	X	X							X			FT	General Education
22	X															E								X			PT	General Education
23	X														VE	X	X						X				FT	Heavy Equipment
24	X																		E				X				FT	Fire Science
25	X														VE	X	X						X				FT	Heavy Equipment
26	X												E				X		X				X				FT	Fire Science
27		X										E												X			PT	General Education
28	X														E	X	X		X				X				FT	Business administ.
29	X												VE		X	X	X D		X				X				FT	Fire Science
30	X														VE	X							X				FT	Heavy Equipment
31	X															E	X		X				X	X			FT	Various
32	X										E	X	X		X	X	X						X				FT	Heavy Equipment
33		X																	E D					X			FT	General Education
34	X															E	X							X			PT	General Education
35		X										E			X									X			PT	General Education
36		X														E	X						X				FT	Business
37	X																		E					X			FT	General Education
38		X													E	X	X		X				X				FT	Office Occupations
39	X														E	X	X		X					X			FT	General Education
40		X													E									X			PT	General Education
41	X														E	X			E				X				FT	Heavy Equipment
42	X														VE								X				PT	Fire Science
43		X													E	X	X		X					X			FT	General Education
44	X										E	X			X				X				X				FT	Natural Resources
45	X										E	X			X								X				FT	Crime Prevention
46	X														E									X			FT	General Education
47	X														VE								X				FT	Occupational Orient.
48	X												VE										X				FT	Orientation
49	X																E						X				FT	Heavy Equipment
50	X																E		X D				X				FT	Heavy Equipment
51	X														VE												FT	Occupational Orient.
52		X																	E					X	X		FT	General Education
53	X												VE										X				FT	Orientation
54	X														E	X	X		X				X				FT	Heavy Equipment/For
55	X		E					X			X	X	X		X	X	X		X				X				FT	Heavy Equipment
56	X																		X				X				FT	Natural Resources
57	X																E		X D				X				FT	Heavy Equipment
58	X										E	X	X		X	X	X						X				FT	Heavy Equipment
59	X														E									X			FT	General Education
60	X												VE										X				FT	Occupational Orientation
61	X														VE								X				FT	Occupational Orientation
TOTAL			1				1	3	2	0	12	14	20	1	34	30	31	1	26	0	0	0	44	17	1		54 Full time 7 Part time	

E = Enter CJC
D = Deans List
G = Graduation
RE= Re-enter

W = Withdraw
VE = VEA Project

TABLE VIII— PROGRESS IN COLLEGE WORK

	CURRENT CUMULATIVE GPA						UNITS COMPLETED									
	0-1	1-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00-3.99	0	1-19	20-39	40-59	60-79	80-99	100-119	120-139	In Major	MAJOR
1	0						0								0	Orientation
2	0						0								0	Orientation
3					2.69			13.0							4	Heavy Equipment
4				2.20					37.1						30	Heavy Equipment
5				2.10						46					42	Heavy Equipment
6				2.49						59.2					46	Heavy Equipment
7					2.93									131	46	Heavy Equipment
8					2.99					52.7					48	Heavy Equipment
9					2.56						69				57	Vocational Nursing
10					2.68						69				57	Heavy Equip. & L.V.
11					2.93				29						8	Heavy Equipment
12				2.12				11.7							8	Office Occupations
13					2.50			14							14	General Education
14						3.06					66				26	Heavy Equipment
15				2.00				2							2	General Education
16				2.00				15							13	Crime Prevention
17				2.38				18							0	Heavy Equip./Gen.
18					2.67			12							12	General Education
19	0						0								0	Orientation
20	0						0								0	Orientation
21						3.20						81.2			81	General Education
22	0						0								0	General Education
23			1.78					16.7							10	Heavy Equipment
24	0						0								0	Fire Science
25				2.38					32.4						6	Heavy Equipment
26		1.10						10							6	Fire Science
27	0						0								0	General Education
28						3.39			31						26	Business administ.
29				2.26								80.3			24	Fire Science/Nat Re.
30					2.96				26.7						8	Heavy Equipment
31					2.57				28						10	Various
32				2.36						56.7					41	Heavy Equipment
33						3.33		15							15	General Education
34			1.83					15.5							15	General Education
35					[illegible]			16							4	General Education
36						3.00		4							4	Business
37			1.72					8.5							8	General Education
38						3.22			23.4						22	Office Occupations
39				2.50				6							6	General Education
40	.57						.7								.7	General Education
41	0						0								0	Heavy Equipment
42	0						0								0	Fire Science
43			1.87					12.7							12	General Education
44			1.66						23						10	Natural Resources
45			1.75						20						0	Crime Prevention
46	0						0								0	General Education
47	0						0								0	Occupational Orient.
48	0						0								0	Orientation
49			1.50					7.5							6	Heavy Equipment
50						3.26			23						19	Heavy Equipment
51	0						0								0	Occupational Orient.
52	0						0								0	General Education
53	0							9							0	Orientation
54				2.36					32						10	Heavy Equipment/For
55				2.23							72				41	Heavy Equipment/For.
56	0						0								0	Natural Resources
57						3.25			24						19	Heavy Equipment
58					2.71					46						Heavy Equipment
59				2.00				2							0	General Education H.E.
60	0						0								0	Occupational Orientation
61	0						0								0	Occupational Orientation
TOTAL:	17	1	7	14	12	8	18	19	12	5	4	2	0	1		

TABLE IX — PERSONAL CHARACTERISTICS

	SEX		PREVIOUS SCHOOLING					AGE				TRIBE									
												LOCAL				OTHER, CALIF.				OTHER, U.S.	
	M	F	Elementary	College Units Toward H.S.	H.S. Diploma	Previous College	Unknown	Teens	20's	30's	40+	MiWok	Paiute	Mono	Washo	Pomo	Tule	Shoshone	Other		Unknown
1	X				no				23										Isleton		
2	X				no		X														
3	X				yes				27												
4	X				yes	X			20												
5	X			X	no				25			X									
6	X				yes				23			X									
7	X				yes	X			23			X						X			
8	X				yes				21			X	X								
9		X		X	yes				29												
10	X				yes					36		X									
11	X				yes				24												
12	X				yes			18												Diegno	
13		X			no			18													
14	X				no				23			X									
15		X			no				25			X			X						
16		X			no						41										
17	X				no				24			X									
18		X			no			19													
19	X				no						41								Wailaki		
20	X				no						44								Wailaki		
21	X				yes				20												
22	X				no				20												
23	X			X	no				20			X									
24	X				no				22												
25	X				yes			17				X									
26	X				no					37									X		
27		X			no				20												
28	X				yes				24			X									
29	X				yes	X			23								X				
30	X				yes			19													
31	X				yes						41										
32	X				no						41	X									
33		X			no			18													
34	X				yes	X			20												
35		X			no			18													
36		X			no					33											
37	X				no	X			20												
38		X			yes			18				X									
39	X				no				21			X									
40		X			yes			19				X									
41	X				no				23								X				
42	X				no						42										
43		X			no				21			X									
44	X				no	X			23												
45	X			X	no			18				X									
46	X				yes				25			X									
47	X				no				22											Cheyenne	
48	X				no				29							X					
49	X				yes	X			23												
50	X				no			19													
51	X				no				21							X					
52		X			no				21												
53	X				no	X			20												
54	X			X	no					34		X									
55	X			X	yes				23			X									
56	X				no				23												
57	X				yes					33											
58	X				no				25						X						
59	X				yes				29					X						Chippewau	
60	X				no					37											
61	X				yes				20				X								
	48/13		0	6	24 yes 37 no	8	1	11	37	6	6	20	2	2	2	2	2	1	4	3	23

TABLE X FINANCIAL AIDS ASSISTANCE

PERIOD FOR WHICH FINANCIAL AID WAS GIVEN

ENROLLMENT AFTER TERMINATI OF AID

	1968-69			1969-70			1970-71			1971-72			1972-73			Continued Enrollment	Dropped School	Transferred	Unknown	Work
	F	W	S	F	W	S	F	W	S	F	W	S	F	W	S					
1																	X			
2																	X			
3																	X			
4								5 *				5	5			X				
5									4-7	4-7	4-7	4-7	5-7				X			
6									4	4	4	4								X
7									4	4	4	4-6								X
8									4	4	4	4								X
9														5		X				
10									4	4	4	4	4	4	4	X				
11																				X
12																	X			
13													4-5	4-5	4-5	X				
14									4	4	4	4	4	4-6	4	X				
15										1-4							X			
16													1-4	1-4		X				
17										1										X
18																	X			
19									4								X			
20									4								X			
21										1-2	1-4	4						X		
22																	X			
23										1							X			
24																	X			
25																	X			
26									5-4			4	1-4-5	4-5	4-5	X				
27																	X			
28																	X			
29									4	4	4	4	4	4	4	X				
30																		X		
31													1-4							X
32									4	4	4	4								X
33													1-4	1-4	1-4	X				
34																	X			
35													6	6	6	X				
36																	X			
37													1-4-5	4-5		X				
38											4	4	1-4	1-4	1-4	X				
39										1						X				
40										1-4							X			
41													5							X
42									4	4	4	4					X			
43													1-4-5	1-4	1-4	X				
44																	X			
45										1-2										X
46										1-2								X		
47									4											X
48									4								X			
49																	X			
50													4	4-6	4	X				
51									4								X			
52													1-4	1-4		X				
53									4								X			
54										2-4	2-4	4	1-4-6	1-4-6	1-4-6	X				
55							1-2-4	1-2-4	1-2-4	1-4	1-4		1-4	1-4-5	1-4	X				
56													4							X
57													1-4	1-4	1-4	X				
58							4	4	4	1-4							X			
59																	X			
60									4								X			
61																	X			
TOTAL-							2	3	19	20	13	14	21	17	13	19	28	3		11

* 1 - EOG
2 - NDSL
3 - CWS
4 - BIA
5 - SB 164
6 - Scholarships
7 - VA

TABLE X₁ -- FOLLOW UP INFORMATION*

	PRESENT LOCATION				REASON FOR DROP						
	Enrolled as of Fall, 1972	Working	Transferred to Different School	Unknown	N/A	Financial	Didn't like Program	To Work	Other	Unknown	
1											
2											
3											
4	X				X						
5	X				X						
6		X						X			
7											
8		X Seasonal						X			
9	X				X						
10	X				X						
11							X				
12											
13	X				X						
14	X				X						
15											
16	X				X						
17		X						X			
18	X				X						
19											
20											
21											
22											
23											
24	X				X						
25						X					
26	X				X						
27											
28	X				X						
29	X				X						
30											
31	X				X						
32		X						X			
33	X				X						
34											
35											
36											
37	X				X						
38	X				X						
39	X				X						
40											
41	X				X						
42											
43	X				X						
44											
45											
46											
47											
48											
49											
50	X				X						
51											
52	X				X						
53											
54	X				X						
55	X				X						
56	X				X						
57	X				X						
58											
59											
60											
61											
TOTAL:	25	4	0	0	25	1	1	4			

* Information Incomplete

Non-learning Problems Affecting Indian Students

I FINANCIAL PROBLEMS

For students receiving BIA assistance, funding approved for each family unit normally covered the period from the first to the last scheduled class in the quarter. This creates a lag between the time the student arrives in the community (or on campus) to enroll (or start classes) and the time required for the BIA to request checks in the individual students' names and the actual delivery of the checks to the student which takes from two to three weeks. Since encountering this problem, college staff have attempted to reduce the effect of this lag through utilization of other financial assistance and loan programs.

The fact that the students' monthly allowance was divided into two installments creates problems in cases where one rent payment is required in advance for the whole month. This situation created a problem in at least two ways: (1) if the student elected to take advantage of the savings involved in a reduced monthly rate from his semi-monthly check, he was likely to be short on funds for food and other necessities before the next payday, and (2) if he should arrange for a twice per month rent payment, he sacrificed the savings he could have made in most cases on a reduced monthly rental arrangement. This is directly related to problems of financial management experienced by all project participants.

II HOUSING

At the outset of the project, a greater number of students not native to the area were referred to the program by BIA. They encountered housing problems as follows.

Without on-campus living accommodations it is necessary for students not native to the area to secure housing in the community.

Reluctance and refusal of some owners to rent to students, and particularly Indians, created some problems, tensions, and anxieties for a few of the Indian students.

The location of available housing constituted a real problem, especially for the students who do not have private transportation. Usually it is necessary to seek and secure suitable housing in or near town or shopping centers where laundry facilities and other required personal services are within walking distance.

III TRANSPORTATION

The lack of privately owned transportation coupled with a shortage of public transportation in the community creates problems for a large percentage of the students at CJC. While the Columbia Junior College transportation department has developed a very good route schedule to and from the campus, it cannot, of course, meet all the students' personal and private transportation needs.

IV MEDICAL

At the outset, some students reporting into school in need of medical attention created problems for not only the students, but also the college administrators and the community medical personnel and facilities as well. While adequate health care and medical services are generally available, the main problem concerned arranging for payment of these services. Since this time, health services are available on campus and through the Indian Rural Health Program.

Students in need of dental work lost valuable time from classes in some cases and are faced with the problem of arranging for payment of these services from very limited funding provisions.

Students with poor vision and in need of glasses soon realized their handicap concerning reading assignments and school work and requested eye examinations and glasses. The BIA 959 program provides for a maximum of $35 from each student's account to be applied on this expense. Since even the least expensive examinations and glasses were in excess of this allowance, the problem was then to arrange for payment of the difference.

As indicated at the beginning of this report, additional finances would certainly reduce problems relating to students' medical needs. All students now pay a health fee which provides for on campus health service exclusive of dental care.

V ALCOHOL

A high percentage of Indian students suffer from the effects of use of alcoholic beverages. The results of this usage can be noted in arrest and legal problems and eventual drop-out.

VI LAW AND THE COURTS

A high percentage of students who encounter non-learning problems are plagued by legal entanglements involving financial problems, previous arrest records related to use of alcohol and subsequent disturbing of the peace. The attitude of the court has been to encourage the student to stay in school through cooperation between college staff and probation personnel.

VII ABSENTEEISM

The poor attendance patterns established at the beginning of the students' entry into the program, in many instances, seems to be a carry-over of the students' earlier school habits, or an indication that other problems exist. This was particularly evident in the first group of students referred for the transitional program. Serious students simply shape up and start attending regularly and others quite possibly get their personal problems resolved.

VIII SUPPLIES AND EQUIPMENT

Delays on the part of the student in arranging for course required school supplies and equipment have created problems in the program.

IX MARITAL

Since married students are accepted in the program the initial groups referred from outside the college area encountered some difficulties in the area of interpersonal problems. When the husband enrolled at Columbia, leaving the family back home, problems were encountered by some of the students because of the distance involved. As more students are enrolled from the local area, this problem has diminished.

X TUTORIAL

The problem encountered here involves getting the student to recognize, acknowledge or admit his need for tutorial services and to request help. An organized tutorial services is now available to all students enrolled at the college.

SUMMARY

While the general nature of the problems among the Indian students appear to fall within the same broad range of problem areas of the non-Indian student, their problems and needs seem to be compounded, complicated and influenced to a greater extent by the following factors:

Inadequate pre-enrollment counseling and information dissemination.

Peculiar needs of individual.

Reticent nature of Indian student.

Lack of individual motivation or unwillingness to accept the need for remedial help.

Financial limitations.

PART II

Curriculum Development

	Health Occupations
Mountain-Oriented Occupations	**Building Maintenance**
Phase I	**Phase II**

CURRICULUM DEVELOPMENT FOR TRANSITIONAL VOCATIONAL PROGRAMS FOR INDIAN YOUTH

Phase I - Mountain Oriented Occupations

This chapter is concerned with the process of development of curriculum in the form of a transitional vocational program for out-of-school and drop-out Indian youth covering the areas of Forest Technology, Fire Science, and Heavy Equipment Maintenance.

The basic objectives of the program were as follows:

1. To expose students to the fields of Fire Science, Heavy Equipment Maintenance, and Forest Technology.
2. To provide opportunities for students to measure their aptitudes and interest against the demands of each of the fields of study.
3. To develop skills used in each of the three fields which can be utilized immediately in the improvement of their individual or community life.

A natural evolution from the above objectives were the following series of questions which would give direction to the formulation of the curriculum for the three occupational areas.

1. What kinds of things does a worker in the field do?
2. What basic information would any worker in any field under discussion require in the following areas?
    a) the physical sciences

2. Continued...
    - b) the biological sciences
    - c) the social sciences
    - d) communication skills, reading, writing, listening
    - e) mathematical skills
3. Under what conditions is the work done?
4. How do these conditions make demands on the individual's life?
5. What does it feel like to perform a job in each field?
6. What are the job opportunities open to an individual entering the field and are there opportunities to specialize?
7. What aptitudes and what knowledge must an individual have that would allow him to enter the field of his choice?

The next step was to pose these questions to the three instructors with expertise in their field and others on the staff who were involved in curriculum development. The following "Occupational Analysis Data" for the "Identification of a Core Program" was derived from the input of those concerned.

OCCUPATIONAL ANALYSIS DATA
IDENTIFICATION OF CORE PROGRAM

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
What Kind of Things Do Workers Do?			
Operate Equipment	☒	☒	☒
Adjust Equipment	☒	☒	☒
Maintain Equipment	☒	☒	☒
Repair Equipment in Field	☒	☒	☒
Clean Equipment	☒	☒	☒
Types of Equipment			
Truck	☒	☒	☒
Hose lays	☒		☒
Engines, gasoline Internal Combustion		☒	☒
Engines, diesel Internal Expansion		☒	
Caterpillar D8		☒	☒
Shovel Unit		☒	
Heavy Engines Equipment		☒	
Graders		☒	☒
Dozers		☒	☒
Lifts		☒	☒
Cables	☒	☒	☒
Pumps		☒	
Generators		☒	
Air Compressors		☒	
Operate Hand Tools List of Hand Tools			
Axes			☒
Axe belt (hatchet)			☒
Axe, double bit			☒
Wedges, falling			☒
Wedges, splitting			☒
Saws			☒
Campground janitorial equipment (mops, brooms, brushes, hoses, etc.)			☒

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
Hand Tools (cont.)			
Saw, pruning (short and long handle)			X
Saw, crosscut (tree trimming)			X
Maul, splitting			X
Sledge Hammer (small for falling wedges; large - wood splitting)			X
Rakes (yard and grass)			X
Shears, pruning (long and short handle)			X
Shears, hedge			X
Shovel, long handle round-pointed		X	X
Shovel, choker			X
Log choker cable			X
Log truck binder chains and gut wrapping			X
Saw, crosscut (felling and bucking)			X
Planting tool, western			X
Planting bar			X
Planting bag (seedlings)			X
Post hole digger			X
Post hole auger			X
Pliers, fencing			X
Wire stretcher (barbed wire)			X
Fence post driver			X
Hammer, claw			X
Back pack pump			X
Peavy (for rolling, turning logs)			X
Spurs, tree climbing			X
Belt, tree climbing			X
Seat, tree climbing			X
Clamps		X	X
Vises		X	X
Cutters		X	X
Recreation maintenance equipment (basic carpentry & plumbing tools)			X

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
Hand Tools (cont.)			
Screw drivers	☐	☒	☒
Drills	☐	☒	☒
Maintain Tools	☒	☒	☒
Repair Hand Tools	☒	☒	☒
Operate Power Tools			
List of Power Tools			
Saws	☐	☒	☒
Drills	☐	☒	☒
Sanders	☐	☒	☒
Polishers	☐	☒	☐
Grinders	☐	☒	☐
Impact wrenches	☐	☒	☐
Chain and Power hoists	☐	☒	☐
Maintain Tools	☒	☒	☒
Repair Tools	☒	☒	☒
Adjust Tools	☒	☒	☒
Operate Specialized Hand Tools			
Back pump	☒	☐	☒
Pulaski	☒	☐	☒
McCloud	☒	☐	☒
Brush hook	☒	☐	☒
Scott Air Pack	☒	☐	☐
Smoke Ejectors	☒	☐	☐
Chain Saw	☒	☐	☒
Communications Equipment			
Vehicle-mounted & Walkie Talkie	☒	☒	☒
Sound Power Telephone	☐	☒	☒
Radio (limited)	☒	☒	☒
Telephone	☐	☒	☒

Measuring Equipment	Fire Science	Heavy Equip.	Forest Tech.
Adjustable Angle Depth Gage		☒	
Inside & Outside Calipers		☒	
Slide Caliper Rule		☒	
Drum Gages		☒	
Thread Gage		☒	
Steel Measuring Tapes		☒	
*Dial Indicator		☒	
*Micrometer		☒	
Biltmore Stick			☒
Diameter Tape			☒
Clinometer			☒
Abney Level			☒
Calipers Log			☒
Scale Stick			☒
Length Tape (log)			☒
Staff Compass			☒
Hand Compass			☒
Chain Tape			☒
Engineer Tape			☒
Engineer Rule			☒
Read-i-Mapper (plane table)			☒
T-Square			☒
Triangles			☒

Applicable to Occupations

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
Measuring Equipment - Continued			
Compass (protractor)			☒
Pocket Stereo Scope (aerial photo)			☒
Aerial Photo Aids			☒
*Would be nice to know but not a requirement at this level			
Prepare Solutions and Mixes			
Sprays	☒		☒
Retardants	☒	☒	
Lubricants	☒	☒	☒
Fuels	☒	☒	☒
Solvents		☒	☒
Assemble Tools, Materials, Equipment			
for operation	☒	☒	☒
for maintenance	☒	☒	☒
for adjustment	☒	☒	☒
for cleaning	☒	☒	☒
for repair	☒	☒	☒
Identify equipment and parts accurately			
Tools	☒	☒	☒
Thread	☒	☒	☒
Wires	☒	☒	
Nuts, bolts, screws, nails, etc.	☒	☒	☒

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
Perform Tests	☒	☒	☒
Perform Measurements	☒	☒	☒
Examine Work for Conformance to Specifications			
Use of check lists	☒	☒	☒
Use of manual orders	☒	☒	☒
Use of manufacturer's guides	☒	☒	☒
Maintain Job Records			
record materials used		☒	☒
record labor time		☒	☒
record parts used		☒	☒
record observations			☒
Lift and Move Objects	☒	☒	☒
Handle Written Communications			
Work Orders		☒	☒
Letters			☒
Lists			☒
Manuals	☒		☒
Job records		☒	☒
order information			☒
Work schedules			☒
Handle Oral Communication			
Telephone	☒	☒	☒
Communications equipment	☒		☒
Visitors			☒
Customers			☒
Co-workers	☒		☒

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
Check Safety Factors			
work conditions	X	X	X
equipment	X	X	X
supplies	X	X	X
work areas		X	X
moving equipment	X	X	X
protective clothing	X	X	X
safety habits	X	X	X
environmental factors, vents, etc.			X
Store Equipment and Supplies			
work areas	X	X	
for transportation	X	X	
for storage	X	X	
Maintain inventories			X
Order Supplies			X
Interpret facility policies	X		X
Under What Conditions is the Work Done?			
Seasonal	X	X	X
Irregular schedule	X		X
Regular schedule			X
Long hours	X		X
Rough terrain	X		X
Hazardous conditions	X	X	X
Extremes of heat, cold, smoke, dust	X	X	X
Physical discomforts	X	X	X
Infectious plants	X	X	X
Long distance travel	X	X	X

Applicable to Occupations

	Fire Science	Heavy Equip.	Forest Tech.
Under What Conditions is the Work Done? (cont.)			
Absences from home	☒	☐	☒
Elements of extreme danger	☒	☐	☒
Factors which cannot be controlled	☒	☐	☐
equipment	☒	☐	☒
materials	☒	☐	☒
Mountain oriented	☒	☒	☒
Rural oriented	☐	☒	☒
Urban oriented	☒	☒	☒
If I Work in This Field, what are the Demands On my Personal Life?			
Housing			
on-site requirements	☒	☐	☒
limited family housing	☐	☐	☒
within commute distance of settled area	☐	☒	☒
Schedule			
24 hour alert	☒	☐	☒
irregular schedule	☒	☐	☒
absences from home	☒	☐	☒
Emergency Situations	☒	☒	☒
Interpersonal Relations			
close living group	☒	☐	☒
loner occupation	☐	☒	☒
Peripheral Duties			
maintaining quarters	☒	☐	☒
Recreation	☒	☐	☒

If the worksite is in the wilderness or overseas, quarters are furnished by the contractor and incentive pay is in order for the additional hardship.

Service is usually performed at the end of a shift.

Time is money emergency repairs are done anytime of the day or night.

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
What Does it Feel Like to Actually Do the Job?			
Training Schedules	☒	☐	☐
Sights	☒	☒	☒
Sounds	☒	☒	☒
Smells	☒	☒	☒
	☐	☐	☐
Team work	☒	☐	☒
Exposure to	☐	☐	☐
heat	☒	☒	☒
smoke	☒	☐	☒
dust	☒	☐	☒
chemicals	☒	☒	☒
Esprit de corps	☒	☒	☒
Contribution to	☐	☐	☐
public good	☒	☒	☒
technical advancement	☐	☒	☒
conservation	☒	☒	☒
feeling of achievement	☒	☒	☒
Excitement	☒	☐	☒
Control of one's environment	☒	☒	☒
Are There Possibilities to Specialize?			
Choice of location	☐	☐	☐
wildlands	☐	☐	☒
municipal	☒	☐	☒
isolated	☐	☐	☒
urban	☒	☐	☒
rural	☒	☐	☒

	Applicable to Occupations		
	Fire Science	Heavy Equip.	Forest Tech.
Branches Within the Field			
Operation			☒
Maintenance			☒
Stores			
Communication	☒		
Laboratory	☒		☒
Identification with a Special Group			
trouble shooter		☒	
hot-shot fire fighting groups	☒		☒
Specialized Equipment			
Pumps and injector, etc.		☒	
Tool & parts room clerk		☒	
Time keeper		☒	
Inventory clerk		☒	

Information from the data was then synthesized into ninety-two behavioral objectives from which the course content, activities, and evaluation procedures were developed. These materials can be found in pages 59 through 310 of this document.

At the end of the first year of instruction an analysis of the degree to which the identified objectives were being taught through the team teaching process was made, as shown on pages 211 through 223. Through this analysis it was found that many of the stated objectives were, in fact, not being taught in the three course offerings. Additionally, the study raised other questions concerning, 1) the relevance of the behavioral objectives, 2) a lack of communication between members of the instructional team, and 3) the scope of the total curricular offerings in relationship to the time allocated.

Because of these problems, an in-service workshop for the instructors involved in this program was established, covering the areas of behavioral objective, course content, activities, and evaluation procedures regarding their specific courses. As an outgrowth of the workshop, a more realistic and viable program was developed. Specifically, course outlines and daily lesson plans for each of the three courses, Fire Science, Forest Technology, and Heavy Equipment Maintenance were completed by each instructor.

BASIC SKILLS

Early in the planning stages of the project, but after the Project Coordinator had been chosen, it was decided that maximum success for both the trainees and the project would be assured if the trainees had at least an eighth grade education before being accepted in the program. While this goal was not achieved in all cases, most of the trainees had either an eighth grade education or its equivalent.

As part of their regular schedule, each trainee was required to enroll in the basic skills course, a course which met twice weekly for two hours at each meeting. The first hour of these bi-weekly meetings was usually devoted to a lecture or film or specific basic skills, such as reading, listening, study skills and vocabulary skills, while the second hour was used in the laboratory setting to actually practice the skills discussed in the lecture.

Diagnostic Testing

During the first week of the program each trainee was given a short battery of standardized diagnostic tests designed to inform both the trainee and the instructor of the trainee's current level of achievement in reading rate, comprehension, vocabulary, study skills, the rate and extent of reasoning skills and writing skills. While the results of this diagnostic testing showed that the majority of trainees were performing significantly below expectations, such results were more or less expected. It was deemed necessary, however, that these expectations be documented in order to identify those trainees who were exceptional on either end of the continuum.

Materials

Rather than working exclusively with the more traditional basic skills texts in order to improve skills, every effort was made to employ those texts and materials used in the other areas of the trainees' curriculum as basic tools for skill acquisition. Two texts from the Fire Science program, for example, were used in the basic skills course to teach vocabulary improvement and how to detect paragraph organization. It was hoped that through this technique, trainees would not only learn some basic skills, but also learn more thoroughly and more quickly the contents of their specialized texts.

In addition to these specialized materials, the more traditional learning skills materials were used. Very careful attention was paid to the selection of such materials, however, particularly with regard to matching the level of difficulty with the ability of the trainee. Even with this careful attention, the success in skill acquisition was minimal principally because the interest level of this material was outside the meaningful experience of the majority of the trainees.

Evaluation

The overall success of the basic skills portion of this project can be guardedly termed "minimal." While this minimal success can be attributed to several factors outside the educational setting, the fact remains that the basic skills course did not, and perhaps could not, adequately cope with all of the factors which contribute to significant behavioral changes in the human being as a learner. Almost every trainee did improve his skills in reading rate, vocabulary, comprehension, listening skills and writing skills when measured through pre-test and post-test scores. The degree of improvement, incidentally, was in almost direct proportion to the amount of time and effort expended in the classroom and laboratory. Those trainees who were absent the greatest number of times showed the least improvement, while those who attended regularly achieved the greatest growth in skill acquisition.

Phase II - Health Related Occupations

The purpose of the second phase of this project was the development of a health manpower core to broaden the career opportunities open to Indian males and the extension of training opportunities to Indian females.

This core was related to the demand needs for hospital and health workers in the mountain areas, including institutional food service and building maintenance. Initial program development was concerned with the occupational areas in health related occupations and building maintenance in health facilities.

Identification of core transitional program, organization of the instructional program and the development of learning materials was carried on by program consultants in the same manner as was the male oriented program developed in 1970-71.

As in the case of the male oriented occupational program, it was anticipated that all participants would have made their career choice and would have entered into on-going programs at the end of the first quarter and a new group of students would enter the program.

With the first phase of the project developing at a very late date, it began to push back the time table for items in phase II, the health manpower core. Two part-time instructors in the nursing program were employed as consultants to build the health occupations core course. They developed the core, but the college was unable to place it into operation as a separate course prior to the expiration of the second project fiscal period.

A portion of the content has since been included in the beginning levels of the Licensed Vocational Nursing course offered on an on-going basis at the college.

The challenge to the nursing instructors was to open the doors to the fields of health occupations for disadvantaged students. This prevocational course involves seven basic units that can be offered in a variety of areas, such as Indian tribal halls and at high schools and can be included in regular entry-level health courses. Detailed outlines of content will be found on pages 261 to 309.

Building Maintenance (Hospital)

In order to develop course content pertaining to employment involving building maintenance, the college employed an individual who had had experience in teaching and training the hard-core unemployed adult. His past experience in MDTA programs training custodians and current experience in school maintenance provided the expertise to construct the prevocational units in building maintenance.

The units in this course were specifically designed to interest men in the broad opportunities in maintenance in general, the variety of experiences available in this field, and the specific nature of required skills. The course can be modified slightly for maintenance in other than hospitals since there is much similarity in this field whether the employee functions in an office, a school or a government building. Content for this course will be found on pages 224 through 260.

The college anticipates using these units as an entry-level course to interest those who are unemployed or seek retraining. The content can serve either as a prevocational course or as the beginning of regular instruction in this area.

INSTRUCTIONAL PROBLEMS
PERTAINING TO PROJECT IMPLEMENTATION

Agency Relationship

A major partner in this project was the Bureau of Indian Affairs (Sacramento Office). Staff members from Columbia visited BIA to develop a cooperative program to serve the needs of the Indian youth identified by BIA as having the most potential for success. As a result of the project, BIA approved all programs at Columbia Junior College according to their required procedure which allowed them to send Indian students to both vocational and academic courses. This required approval of two separate offices as follows: 1) Public Law 959 funds are limited to two-year vocational training. This program is administered by the Employment Assistance Branch, 2) Scholarship funds provide financial assistance to eligible applicants interested in General Education or college degree programs. These funds are administered by the Education Branch. This branch may provide assistance for as long as students make satisfactory progress and funds are available.

Recruitment

Census data from school superintendents of Calaveras, Alpine, Tuolumne and Mariposa counties seemed to indicate an Indian population sufficient for the recruitment of 20 to 25 Indian youth per quarter to start into the three-quarter sequence.

However, the initial field recruitment trips by the Coordinator in the four county area did not result in the enrollment of any students from the original target area.

As a result of this initial experience, recruiting methods were changed and the responsibility for recruitment became that of the Coordinator of Services to Indian Students who, himself, is a native of the local community. The recruitment was expanded to include other counties and other Indian population centers, and the Bureau of Indian Affairs was called upon for assistance in the recruitment process.

Assignment of Instructional Staff

All of the instructors were new to the problem of teaching Indian students and the implementation of a core program.

The combination of sporadic attendance and scheduling problems rendered the original approach to instruction as unworkable. Extensive time was devoted to breaking down into common core categories those areas of instruction that were common to all segments of the project. Each of the instructors picked one of the objectives or more that he agreed he would teach in order that it not be repeated in other sections of other classes. Following this doling out of objectives and the instructors attempting to avoid duplication, the problem of attendance then created a poor situation. Even after the instructor had completed the objective and was ready to move on to the next one, those who were absent from that particular segment failed to receive that instruction. Since much of the instruction was a ladder concept, building one unit upon the next, attendance raised havoc with this type of instruction. This approach was soon changed with students assigned to regular on-going programs.

Administrative Problems

From an administrative point of view, trying to balance the concerns of a number of students in the class versus the cost of instruction and the reimbursement for total economics of the program through the Average Daily Attendance caused continuing problems. The extent to which the Bureau of Indian Affairs could supply additional students to meet the quotas set for new student enrollment was subject to federal control.

If a team approach is to be tried again, then two things will have to happen: (1) an in-service training program for instructors, teaching them techniques to be utilized in a team-teaching situation is vital, and (2) instructors functioning as a team must have the physical facilities which allow them to function as a team. It would seem that the students being in one location or at least as few locations as possible to rotate them and keep the instruction alive and workable would be an advantage. A team can be brought together to one location; it's hard to team-teach in three or four locations.

Because of the recruitment and enrollment problem, maintaining interest and morale of staff was difficult, as it was impossible to explain to staff what would be happening within the next quarter and the direction the instructional program would take. The complexity of these problems were substantially alleviated when the decision was made to incorporate the core material in the on-going program and reduce the extend to which BIA recruited students. Recruitment and referral to BIA and other financial aids programs available to the college once again became a responsibility of the college.

Institutionalizing Services to Indian Students

The feeling on the part of the Project Coordinator that the project was outside the regular college offerings led to increased efforts to institutionalize both program and services. To this end, the position of Project

Coordinator, responsible for both curriculum and services was eliminated and a half-time Coordinator of Services to Indian Students was attached to the Student Services Division of the college to provide continuing service to enrolled students.

A. FOREST TECHNOLOGY

Course Outlines

Lesson Plans

The area of responsibility of the Forest Technology portion of the program was to acquaint the student with the three major fields of Forest Technician employment which are: 1) Forest Management, 2) Forest Recreation, and 3) Forest Engineering. The objectives of the course was to expose the student to a cross section of the duties and working conditions that exist in these three major fields. As a result of this exposure, the student may determine his suitability to a career in Forest Technology.

Activities outside the classroom predominated the course of study. Field trips were selected that would demonstrate the forest technician's role the best. The lecture material was selected as being most applicable to the three major fields.

The recommendations for the course would include better organization of the material and a broadening of the material. In retrospect, there was repetition of material that could be eliminated. This in turn will allow more material to be covered.

Forest Technician Titles & Tasks
(Excluding Fire Prevention & Control)

I. Timber Management

A. Titles

1. Cruiser
2. District Culturalist
3. Forestry Aide
4. Forestry Foreman
5. Forestry Technician
6. Scaler
7. Timber Management Assistant
8. Timber Sales Officer
9. Timber Stand Improvement Crew Foreman

B. Tasks

1. Forest Management
2. Land Management
3. Silviculture
4. Forest Inventory
5. Tree Growth Determination
6. Photo Interpretation
7. Artificial Reforestation
8. Forest Tree Nursery Work
9. Inspection Surveys
10. Contract Supervision
11. Train Subordinates
12. Compile Data
13. Cruise Timber
14. Identify Tree Species
15. Identify Brush Species
16. Operate Equipment
17. Inspect Logging Operations
18. Conduct Safety Training
19. Mark Timber for Harvest
20. Mark Timber for Stand Improvement
21. Recognize Insect Damage
22. Prepare Maps
23. Run Hand Compass
24. Grade Logs
25. Scale Logs

II. Forest Land Recreation

A. Titles

1. Boat Operator
2. Custodian-Historical Monument
3. Forest Recreationist
4. Groundsman
5. Guide-Historical Monument

6. Maintenance Aide
7. Maintenance Supervisor
8. Packer
9. Park Aide
10. Park Attendant
11. Park Foreman
12. Park Guide
13. Park Interpretive Specialist
14. Park Maintenance Man
15. Park Naturalist
16. Recreation Aide
17. River Boatman
18. Snow Safety Specialist
19. Survey Interviewer

B. Tasks

1. Campground Care and Policing
2. Construction
3. Maintenance
4. Rehabilitation
5. User Surveys
6. Explain and Enforce Rules and Regulations
7. Clean Sanitary Facilities
8. Fight Fires
9. Requisition Materials and Supplies
10. Clear Fire Breaks
11. Clear Trails
12. Collect Refuse
13. Give First Aid
14. Drive Vehicles
15. Interview Visitors
16. Guide Visitors
17. Interpret Exhibits
18. Clean Up Fireplaces
19. Give Directions and Talks
20. Compile Data
21. Make Reports

III. Forest Engineering

A. Titles

1. Chain Man
2. Construction Inspection Technician
3. Engineering Aide
4. Reconnaissance Crew Member
5. Reconnaissance Party Chief
6. Road Design Technician
7. Road Locator
8. Rod Man
9. Survey Crew Member
10. Survey Party Chief

B. Tasks

1. Land Surveying
2. Search for Land Survey Corners
3. Road Reconnaissance
4. Chain Man
5. Rod Man
6. Instrument Man (Level & Transit)
7. Preliminary Line Survey
8. Profiles
9. Site Surveys
10. Right-of-Way Plots
11. Quantity Estimates
12. Identify Construction Materials, Availability and Suitability
13. Recognize Major Drainage Requirements
14. Review and Study Maps
15. Calculate Excavations & Embankments
16. Organize & Coordinate Work of Crew
17. Train Subordinates
18. Right-of-Way Easements
19. Location Survey
20. Layout Curves
21. Plan Bridges & Culverts
22. Plan Water Bars
23. Locate Roads

Forest Technology

Course Objective

To expose the student to a course of study to enable him to determine his suitability to a career in Forest Technology.

Secondary Objective

To make the student cognizant of his ability to perform the duties of a forest technician.

Measurable Objectives

1. Given a specific forestry tool the student will know how it is used.
2. Each student will be able to describe tools and equipment used in forestry work.

Course Outline

I. Survey of a Sierra Forest
  A. Composition of the Forest
  B. Uses and Values

II. Work of the Forest Technician
  A. Scope of the Work
  B. Knowledge and Skill Required
  C. Employment Opportunities

III. Applied Forest Management at Technician Level
  A. Silviculture
    1. Reforestation
    2. Timber Stand Improvement

  B. Forest Land Recreation
    1. Campground Care and Policing
    2. Explain Rules and Regulations

  C. Forest Engineering
    1. Land Surveying
    2. Road Location

  D. Forest Protection (except fire)
    1. Insect Detection and Control
    2. Pathogen Detection and Control

IV. Effective Human Relations

First Week

Objective: Introduction of Instructor and Course Material

- I. Formal Introduction
  - A. Introduce Instructor
    - 1. Background
    - 2. Expectation
- II. Introduction of Material
  - A. Two General Employment Groups
    - 1. Governmental Agencies
      - a. Federal
      - b. State
      - c. County
    - 2. Private Industry
      - a. Timber company
      - b. Property owner
  - B. Seasonal Nature of Employment
    - 1. Climatic Conditions
    - 2. Seasons Determine Tasks
    - 3. Combination of Various Tasks to Lengthen Working Season
      - a. Planting
      - b. Timber stand improvement
      - c. Christmas tree culture
    - 4. Visited Insect Control Project on Campus
      - a. Probable cause
      - b. Necessity of control
      - c. Other possible controls
- III. Tree Growth
  - A. Areas of Growth
    - 1. Tip - Height
    - 2. Stem - Diameter
    - 3. Roots
  - B. Need to Protect these Areas
  - C. Effect of Neighboring Vegetation

First Week

BIA took over the entire period

Second Week

Objective: Field Examination of Forest Relationships
Familiarize Students with Campus
Familiarize Students with Natural Resources Building

- I. Forest Relationships
  - A. Plantation at Entrance to Campus
  - B. Natural Regeneration at Parking Lot
  - C. Arboretum
    - 1. Advantages of Competition
    - 2. Disadvantages of Competition
  - D. Plant Identification
    - 1. Scientific or Common Name
    - 2. Commercial Importance

- E. Forest Enemies
  - 1. Insects
  - 2. Fungi
  - 3. Parasites
- II. Campus
  - A. Geology
  - B. History
    - 1. Gold
    - 2. Ditch and Lake
    - 3. Age of Forest
- III. Natural Resources Building
  - A. Exhibits
    - 1. Cones
    - 2. Insects
    - 3. Soils
    - 4. Leaves
    - 5. Wood
    - 6. Skulls
  - B. Equipment
    - 1. Microscopes
    - 2. Carrels

Second Week

Objective: To Familiarize Students with Chain Saw.
Guest Speaker: Myren Goodell, Homelite Chain Saw Distributor

- I. Power Unit
  - A. Nomenclature
  - B. Operation
  - C. Trouble Shooting
  - D. Operate Chain Saw
  - E. Safety Practices in Use of Chain Saw
  - F. Fuel Chain Saw
  - G. Carry the Saw
  - H. Saw and Fuel Storage
  - I. Fill Oil Tank for Chain Oiler
  - J. Clean Air Filters
- II. Bar
  - A. Proper Bar
  - B. Adjust Bar
  - C. Bar-guard
- III. Chain
  - A. Proper Chain
  - B. Chain Tension
  - C. Sharpen Chain
    - a. Cutting teeth
    - b. Raker teeth
- IV. Distributed Manuals
- V. Discussion of Demonstration

Third Week

Objective: Familiarize Students with Planting Bar
Acquaint Students with Hand Compass
Acquaint Students with Two and One Half
Acquaint Students with Chain Trailer Tape
Acquaint Students with Topographic Abney

- I. Planting Bar
  - A. Proper Use in Field
    - 1. Each Student Used Tool
    - 2. Advantages
    - 3. Disadvantages
  - B. Other Planting Tools
    - 1. Auger
    - 2. Maddox
- II. Hand Compass - Silva
  - A. Declination
    - 1. What It Is
    - 2. Significance
    - 3. Correction
  - B. Local Attraction
  - C. Proper Settings
    - 1. Point Out Directions
    - 2. Set a Bearing
- III. Two and One Half Chain Trailer Tape
  - A. History
  - B. Use
  - C. Horizontal Distance
  - D. Slope Correction
  - E. Paces per Chain
    - 1. Measured Course
    - 2. Students Determined Their Paces per Chain
- IV. Topographic Abney
  - A. Use with Chain-Slope Correction
  - B. Other Uses

Third Week

Objective: Familiarize Students with U.S. Geological Survey Topographic Map

- I. Topographic Maps were Distributed
  - A. General Land Office Rectangular Survey System
    - 1. Base and Meridian
    - 2. Township
    - 3. Range
    - 4. Section
    - 5. Sub-section
  - B. Map Symbols

BIA took over bulk of this period.

Fourth Week

Objective: Acquaint Students with Use of Hand Compass and Topographic Map

- I. Coordinating Hand Compass and Topographic Map
  - A. Procedure to Obtain Bearing From Map
    - 1. Locate Compass on Desired Points
    - 2. Orient Compass with Meridian Lines
  - B. Present Location on Map
    - 1. Bearings of Two Points
    - 2. Plot on Map
    - 3. Intersection is Present Location

II. Evaluation (Oral)
    A. Determine Bearing Between Given Points
    B. Determine Location - Given Bearings of Various Points

Fourth Week

Objective: Familiarize Students with U.S. Geological Topographic Map (continued from 4-27)

I. Reviewed and Expanded Material of 4-27
    A. Demonstrated Use of Legal Subdivisions
    B. Advantages of This Method
II. Evaluation (Oral)
    A. Given Legal Subdivision - Students Requested to Identify What Landmark was Located Thereon
    B. Given a Landmark - Students Requested to Identify Legal Subdivision

Fifth Week

Objective: Ascertain Students Comprehension of Hand Compass and Pacing

I. Given a Compass Course to Traverse
    A. Reviewed Use of Hand Compass & Pacing
    B. Run Course
II. Evaluation
    A. Termination of Compass Course - Student Could Compare His Location to Actual Point. Discussed Reasons for Differences

Fifth Week

Objective: Contour Interpretation of Topographic Map

I. Topographic Maps were Distributed
    A. Contour Interval
    B. Iterpolation
    C. Distinguishing Level vs. Steep
    D. Distinguishing Ridge vs. Drainage
    E. Distinguishing Peaks vs. Saddles
    F. Determine Route Between Two Points
    G. Showed the Class Copies of 7½ Minute Maps for Comparison
II. Evaluation (Oral)
    A. Given a Section - Determine the Elevation of the Highest and Lowest
    B. Given Two Points - Determine Total Elevation Difference Between Two. Pick Route from One to Other with Least Elevation Change

Fifth Week

Field Trip

Objective: Students Experience Actual Field Conditions.
S. G. Mauk, & J. B. Brogan, U.S. Forest Service, Calaveras Dist.
Conducted the Activities on the Field Trip

- I. Seedling Planting
  - A. Demonstrated Use of Planting Maddox
  - B. Proper Handling of Seedlings
  - C. Proper Placement of Seedlings
- II. Tree Pruning
  - A. Proper Use of Pruning Saw
  - B. Proper Method to Make Cut
- III. Christmas Tree Culture
  - A. Selection of Tree to Shape
  - B. Procedure to Produce Desired Shape
- IV. Logging Operation
  - A. Timber Faller Performed his Duties with Chain Saw
    - 1. Fall Tree
    - 2. Limb Tree
    - 3. Buck Tree
  - B. Tractor Operator Performed his Duties
    - 1. Tractor to Logs
    - 2. Set Chokers on Logs
    - 3. Hooked Chokers to Tractor
    - 4. Skidded Logs to Landing
  - C. Fork Lift Operator
    - 1. Sort & Stack Logs
    - 2. Bump Knots
    - 3. Load Truck with Logs
  - D. Truck Driver
    - 1. Brand Logs
    - 2. Tie Down Load
    - 3. Haul Logs to Mill

During entire field trip students were encouraged to ask questions and discuss work with those doing the jobs.

Sixth Week

By prior arrangement Mr. Ransom Dick conducted class.

Sixth Week

Objective: Acquaint Students with Activities of Game Management.
Literature on Chain Saw Safety Distributed.

Guest Speaker: Mr. Vincent Dona, Game Warden,
Department of Fish and Game

- I. Opportunities in Department of Fish and Game(Game Management)
  - A. Education
    - 1. Professional
    - 2. Technical
    - 3. Aide
  - B. Warden
    - 1. Law Enforcement
    - 2. Game Surveys
  - C. Biologist
    - 1. Forage Conditions
    - 2. Census
    - 3. Habitat Improvement

- D. Salaries
  - 1. Fringe Benefits
  - 2. Experience
- E. Questions of Students Answered

II. Literature on Chain Saw Safety (enc.)
- A. Discussed Material
- B. Coordinated Material with Observations on Field Trip of 5-14-71

III. Distributed U.S. Forest Service Applications
- A. Explained Forms
- B. Application Represents Applicant
  - 1. Neat
  - 2. Complete

Seventh Week

Objective: Acquaint Students with Log Scaling

I. Log Scaling - One Log
- A. Scale Stick
  - 1. Explained Stick
  - 2. Explained Log Rule
- B. Log Dimensions
  - 1. Length
  - 2. Diameter
- C. Students Scaled Logs on Campus
  - 1. Proper Measurement Methods Demonstrated
  - 2. Each Student Scaled the Given Logs

II. Evaluation (written)
- A. Results of C.2 Corrected
- B. Given Log Dimensions - Students Requested to Determine Scale

Seventh Week

Objective: Observe Actual Working Conditions at Fish Hatchery

Field Trip: Moccasin Creek Fish Hatchery, Department of Fish & Game
R. C. Camozzi, Biologist, Conducted Tour

I. Opportunities at Fish Hatchery
- A. Collection of Eggs
- B. Care of Eggs During Hatching
- C. Feeding While Developing
- D. Planting
- E. Maintenance of Site, Plant & Equipment
- F. Education Requirements
- G. Salaries
- H. Questions of Students Answered

II. On Return to Campus Stopped at Railtown 1897 - Jamestown
- A. Explained Significance
- B. Recreation Importance

Eighth Week

Objective: Observe Actual Working Conditions at State Park

Field Trip: Columbia State Park, Department of Parks & Recreation
Mel Bolding, Park Maintenance Supervisor, Conducted Tour

- I. Opportunities at State Park
  - A. Restoration
    - 1. Buildings
    - 2. Displays
  - B. Maintenance
    - 1. Historical Features
    - 2. Present Amenities
  - C. People Problems
  - D. Education Requirements
  - E. Salaries
  - F. Questions of Students Answered
- II. Compared Activities to Calaveras Big Trees State Park

Field Trip: (Picnic - 4-16)

Eighth Week

Objective: Observe Actual Working Conditions at Sawmill, Plywood Plant Planner, Box Factory and Lumber Yard.

Field Trip: Pickering Lumber Corporation
Emmet Dahl, Supervisor, Safety & Security Patrols,
Tour Conducted

- I. Sawmill
  - A. Log Yard
  - B. Debarker
  - C. Scaler
  - D. Sawyer
  - E. Off Bearer
  - F. Edger
  - G. Edge Puller
  - H. Gang Saw
  - I. Trimmer
  - J. Green Chain
  - K. Saw Filer
- II. Planner
  - A. Grader
  - B. Stacker
  - C. Car Loader
- III. Plywood Plant
  - A. Log Steamer
  - B. Debarker
  - C. Lathe
  - D. Trimmer
  - E. Drier
  - F. Layup
  - G. Press
  - H. Patcher
  - I. Sander
  - J. Edger & Trimmer
  - K. Loader
- IV. Box Factory
  - A. Sawyer
  - B. Bundler
  - C. Printer

V. Lumber Yard
VI. Questions Answered
  A. Education
  B. Union Membership
  C. Benefits

Ninth Week

Objective: Reviewed Scaling - Acquaint Students with Methods of Making Deductions for Defects in Logs

I. Log Scaling (One Log)
  A. Reviewed Work to Date
  B. Corrected Papers
II. Log Scaling (Two Logs)
  A. Log Dimensions
    1. Length
    2. Two Diameters
  B. Midpoint Diameter
III. Allowance for Defects
  A. Squared Defect Method
  B. Shortcut Procedure
  C. Pie-Cut Method
  D. Length-Deduction Method
  E. Diameter-Deduction Method

Ninth Week

Objective: To Fill Out State Employment Applications and Review Course

I. Distributed State Employment Applications
  A. Explained Forms
  B. Students Filled Out Forms
    1. Checked for Neatness
    2. Checked for Thoroughness
II. Review of Course
  A. Students Reflections of Course
  B. Improvements to Course
III. Students Plans
  A. Summer Employment
  B. Future Education

Suggested Placement of the Two Additional Weeks -

The timber cruising, etc., should be coordinated with the time of year so the field work is not interrupted by inclement weather.

The field trip to the forest tree nursery should be coordniated with activities of the nursery and made at a time when activity is at a maximum.

Week - X

Objective: Familiarize Students with Timber Cruising, Log Grading & Marking Trees for Harvest

- I. Timber Cruising
    - A. Biltmore Stick
        - 1. Diameter Breast High
        - 2. Merritt Hypsometer
    - B. Diameter Tape
    - C. Abney
    - D. Sampling Methods
        - 1. Strip
        - 2. Plots
    - E. Volume Table
        - 1. Different Table for Each Species
        - 2. Different Table for Sites
- II. Log Grading
    - A. Reasons for Grading
    - B. Number of Grades
        - 1. Five Grades for Pines
        - 2. Three Grades for Firs
    - C. Determination of Volume by Grade
    - D. Second Growth Grades
- III. Marking Trees for Harvest
    - A. Old Growth
        - 1. Dunning Tree Classification
        - 2. Remove Poor Risk
    - B. Second Growth
        - 1. Thinning From Above
        - 2. Thinning from Below
- IV. Evaluation (written)
    - A. Given Trees on Campus - Students Measure Trees & Determine Volume
    - B. Correct & Discuss Results

Week - Y

Objective: Observe Actual Working Conditions at Forest Tree Nursery and Forest Genetics Laboratory

- I. Forest Tree Nursery
    - A. Collection of Cones Explained
        - 1. Handling
        - 2. Storage
    - B. Extraction of Seed
        - 1. Dewinging
        - 2. Storage
    - C. Stratification
        - 1. Purity
        - 2. Germination
    - D. Planting
        - 1. Methods
        - 2. Spacing
    - E. Nourishment
        - 1. Watering
        - 2. Fertilizing

- F. Protection
  - 1. Insects
  - 2. Fungi
  - 3. Rodents
  - 4. Weeds
- G. Lifting
- H. Packaging
- I. Storage
- J. Shipping
- K. Experiments
- L. Questions Answered

II. Forest Products Laboratory

- A. Purpose
- B. Success
- C. Future

LESSON PLAN #1

Course: Forest Technology
Lesson Title: Timber Cruising
Objective: To teach the students the basics of timber cruising
References: Scaling and Cruising by Dilworth
Materials Needed; Biltmore Stick, Diamater Tape, Abney & Volume Table

Introduction: Timber cruising, in its simplest form, is an inventory of a forest stand to determine the quantity of the forest products that can be derived therefrom. This might sound like all the trees are measured but this is not usually the case. How do we measure a tree?

Presentation:

A. Sampling Method.

1. Strip - run straight center line and measure all tree within 33 feet on either side. (Diagram on blackboard.)
2. Plots - run straight line and at predetermined intervals set plot center then all trees within the given radius are measured. (Diagram on blackboard.)
   This will all be set out for you by supervisor.

B. Biltmore Stick.

1. Diameter Breast High D.H.B.4.5 feet above the ground
2. Hold 25" from eye with zero end at left edge of tree then read diameter from stick where right edge of tree intersects stick. Don't move head!
3. Need two diameter at right angles because tree is not round.
4. Diameter tape most accurate but takes more time. Best to use on larger trees.

C. Height Measurement in Logs

1. Merritt Hypsometer on Bilmore Stick
2. Abney
3. Determination of 10 inch top

D. Volume Tables

1. Different tables for each species because each grows differently
2. With diameter and number of logs can go to table and get volume

Application:

A. Each student measures some trees with the Biltmore Stock, diameter tape, Merritt Hypsometer and abney. Comparisons made with different tools. Questions answered

Test:

A. Given some trees, students are requested to measure them and determine volume.
B. Results are corrected and discussed.

LESSON PLAN #2

Course: Forest Technology
Lesson Title: Log Grades
Objective: To teach the students the log grades as used by the Forest Service
References: Pocket Guide to the Improved Grading System for Ponderosa Pine and Sugar Pine by Edward M. Gaines
Materials Needed: None

Introduction: Clear lumber comes from logs without knots and is more valuable. What makes knots and where would you expect to find the least number of knots?

Presentation:

A. Reason for Log Grades

1. Clear lumber demands a higher price
2. Affects the value of the tree in the woods

B. Number of Grades

1. Five grades in Pine
2. Three grades in Fir

C. Determine the amount of the tree volume in each grade

D. Second Growth Grades

1. Poles and piling
2. Knot spacing permit peeling

Application:

Tour campus discussing grade in trees as seen

LESSON PLAN #3

Course: Forest Technology
Lesson Title: Marking Trees for Harvest
Objective: To teach students one method of determining what trees to mark for harvest
References: Dunning Tree Classification
Materials Needed: Dunning Tree Classification handouts

Introduction:

To ensure a continuous forest cannot cut down all the trees. One method would be to cut only the sick, old and dying or poor risk trees. Then let the healthy, vigorous trees grow. How can you tell the poor risk?

Presentation:

Dunning Tree Classification

1. Pass out copies
2. Discuss the significant features of the seven classes

Application:

A. Tour the campus, classify the trees seen in Dunning's classes.
B. Point out the differences between vigorous and poor risk trees.

LESSON PLAN

(This should be presented prior to field trip to nursery)

Course: Forest Technology
Lesson Title: Forest Tree Nursery
Objective: To teach the students how a forest tree nursery operates
References: None
Materials Needed: None

Introduction:

A. Approximately 20 million forest tree seedlings planted last year in California
B. How were they produced?

Presentation:

A. Collection of Cones

1. Cone orchards
2. Logging operations
3. Beat squirrels to them
4. Storage

B. Extraction of seed from cones

1. Dewinging
2. Storage

C. Stratification

1. Purity percent
2. Germination percent

D. Planting

1. Methods
2. Spacing

E. Nourishment

1. Water every day for first two to three weeks
2. Fertilize

F. Protection

1. Insects
2. Birds
3. Fungi
4. Rodents
5. Weeds

G. Lifting

1. Mechanical - tractor with cutting bar cuts roots 10 inches down and loosens trees so they can be picked up
2. Remove seed bed sides so soil falls away from trees so they can be picked up

H. Packaging - Storage and Shipping

LESSON PLAN

Course: Forest Technology
Lesson Title: Introduction to Course
Objective: To introduce the students to the fields of forest management, forest recreation and forest engineering
References: None
Materials Needed: None

Introduction:

A. Introduce the Instructor

  1. Educational background
  2. Field experience
  3. Assistance to students
     a. Educational problems
     b. Personal problems

B. Introduce Material

  1. Employment Possibilities
     a. Governmental agencies
        1. Federal
        2. State
        3. County
        4. City
        5. Water districts
     b. Private Industry
        1. Timber company
        2. Property Owner
        3. Concessionaire
  2. Salary Potential
     a. Dependent on Seasonal Position or Permanent
     b. " " Years of Experience
     c. " " Education
     d. 1. $452 - $624 (put figures on blackboard. The high figure
        2. $480 - $696 coincides with college degree)
        3. $530 - $819
     e. Explained combining various tasks that must be done at certain seasons to strive for year long employment
        1. Plant seedlings in Spring, timber stand improvement during summer and Christmas trees in late Fall.

Presentation:

A. Visited Insect Control Project on campus
  1. Discussed probably cause was slow clean up of slosh when campus developed
  2. Need control promptly or greater number of trees will be killed
  3. Remove infected material because insects still inhabit material
  4. Other possible methods of control
  Additional questions

LESSON PLAN

Course: Forest Technology
Lesson Title: Tree Growth
Objective: To teach the students how a tree grows
References: None
Materials Needed: None

Introduction:

- A. Why is it important to know how a tree grows?
  - 1. How does the tree grow taller?
  - 2. How does the tree grow larger in diameter?
  - 3. Can you tell age of tree because of growth habits?
  - 4. How is it possible for small insects to kill tree?

Presentation:

- A. Diagram tree on blackboard (Conifer)
- B. Indicate growing points and how growth is added
  - 1. Tip - height and new branches
  - 2. Stem - diameter
  - 3. Roots - diameter and tip
- C. Add couple of years growth to diagram explaining what is going on
- D. Parts of the tree and their function
  - 1. Branches and needles (leaves)
    - a. Support of food manufacturing machinery - photosynthesis
  - 2. Stem
    - a. Support crown
    - b. Transportation of food from leaves to roots and the water and minerals from roots and leaves
  - 3. Roots
    - a. Anchor tree in place
    - b. Absorb water and dissolved minerals from soil
  - 4. Bark
    - a. Protection
- E. Explain what happens when the tree parts listed in D. above are damaged or removed
- F. Explain how insects cut transportation system
- G. Explain how tree can be aged by counting intervals between branches or by boring tree or by cross section of tree stem
- H. Explain effect of neighboring vegetation
  - 1. Competition for soil water and nutrients
  - 2. Competition for sunlight
  - 3. Competition for sunlight of branches and leaves on tree itself

Additional questions

LESSON PLAN

Course: Forest Technology
Lesson Title: Forest Tree Planting
Objective: To teach the students how to plant forest tree seedings
References: None
Materials Needed: Planting Bar

Introduction:

A. To plant a tree there needs to be a hole in the ground
  1. Shovel not proper tool - removes too much soil
  2. Invented planting bar

Presentation:

A. Demonstrate proper use of Planting Bar
B. Discuss Seedling Placement
  1. Roots straight down into hole
  2. Locate root collar at ground level
C. Demonstrate backfill
D. Discuss test for proper backfill - tree should be held firmly by soil

Application:

A. Each student uses planting bar and goes the steps above
B. Discussed advantages and disadvantages of planting bar
C. Described other tools for job - planting maddox and auger
Additional questions

LESSON PLAN

Course: Forest Technology
Lesson Title: Land Measurement
Objective: To acquaint students with the method land areas are measured and acquaint them with the instruments that are used.
References: Silva Compass Instruction Manual
Materials Needed: Hand compass, two and one half chain trailer tape, topographic abney

Introduction:

A. When traveling in wildlands or the forest it is necessary to know where you are and where you are going
B. Some instruments can be used to measure land areas and prevent you from becoming lost
C. We will limit coverage to the hand compass, two and one half chain trailer tape and topographic abney because they have more uses and are easiest to use. The staff compass, transit, level and 100 foot tape are the instruments covered in advanced courses.

Presentation:

A. Hand Compass
    1. Needle is magnetic and points north but it is not true it is magnetic north.
    2. Explain about Declination and how it is corrected. Make sure it is always set off on compass.
    3. Relate timber trespass on client's property because surveyor did not set off declination
    4. Explain about local attraction and demonstrate with knife or keys
    5. Demonstrate how to set a bearing, take sight and proceed to destination
    6. Demonstrate how to determine a desired direction

B. Two and one half chain trailer tape
    1. Give brief history of chain and diagram a couple of links on blackboard
    2. Explain how chain is used
    3. Explain that all distances are usually horizontal distance
    4. Most times distances are measured on the slope and therefore need correction because slope distance is shorter than horizontal distance. This is the reason for the trailer portion of the chain.
    5. Explain reason to know the number of paces a person takes to travel one chain.

C. Topographic Abney
    1. Explain that the scale indicates the number of feet rise (or fall) per chain.
    2. Find this same reading on the trailer and this gives the proper slope correction
    3. Explain that line of sight must be parallel to ground slope. Do not have to lay down on ground to take sight, just be sure that sight at other end is same distance off ground as eye. (Use diagram on blackboard.)

C. Topographic Abney (continued)

4. Mention abney can be used for tree heights, slope staking and road location.

Application:

A. Each student given compass

1. Check for declination
2. Set compass on North and orient so needle is in proper location Instructor check all compasses. Repeat for West.
3. Everyone check compass with keys or knife for local attraction
4. Go outside and ask what the bearing is of a certain tree
5. Ask what do they see looking down a given bearing

B. Two and One Half Chain Trailer Tape is Laid Out on Ground

1. Two students measure off 2 chains over a flat piece of ground
2. Move to an area with sloping ground and measure off 2 chains
3. Have students determine their paces per chain over flat area. Check what it is on slope area and note need for additional paces.

C. Topographic Abney

1. Demonstrated in B.2. above

LESSON PLAN

Course: Forest Technology
Lesson Title: Topographic Map Reading
Objective: Teach students to read the U.S. Geological Survey Topographic Maps
References: None
Materials Needed: Copies of 15 minute U.S.G.S. Topographic Maps
(Columbia was used)

Introduction:

A. Pass out maps to students

B. Important tool to keep you oriented in wildlands and forest

C. Made from aerial photos - you are right above this area

D. The physical features of area and the improvements are depicted on maps by different colors, shapes and lines

E. Therefore must learn to read the map

F. Point out where lake on campus is located on map

Presentation and Application:

A. Orientation of Map

1. North arrow on map
2. Shows magnetic declination
3. North at top of map hence you know where the cardinal directions are located

B. Green Overlay Depicts Woodland

1. White is grass or rock areas
2. Point out orchards and brush land and explain the difference

C. General Land Office Rectangular Survey System

1. Method I have been using is to point out things not very precise, clear or easy. Lets do it correctly
2. History of Rectangular Survey System explained and advantages discussed
3. Base and Meridian - Sketch map of California on blackboard and locate Mt. Diablo, Humboldt and San Bernardino.
4. Township, range and sections explained. Red lines on map and red letters and numbers on edge of map
5. Section has 16 forties and each forty has its own designation

D. Map Symbols

1. Roads are indicated in various ways depending on importance and amount of improvement.
2. Buildings, churchs, schools were pointed out using legal subdivisions for location.

D. Map Symbols (continued)

3. Springs, streams, rivers and lakes, ponds were pointed out. Intermittent stream also explained.

Tests: (Oral)

A. Students were requested to identify landmark in a given legal subdivision (forty)
B. Students were requested to identify what legal subdivision (forty) contained a given landmark

LESSON PLAN

Course: Forest Technology
Lesson Title: Coordinated Use of Hand Compass and Topographic Map
Objective: Teach students to use hand compass and topographic map together
References: Silva Compass Instruction Manual
Materials Needed: Hand Compass and 15 minute U.S.G.S. topographic maps

Introduction:

A. You need to locate yourself at point X on the map and you can't drive there
B. You can drive to point Y so then, how to get from Y to X?
C. While traveling from Y to X you want to check your location. Is this possible?

Presentation:

A. Use blackboard sketch for first presentation.
    1. Indiate points X and Y with straight line connecting them as your line of travel
    2. Place edge of compass on line of travel and rotate dial so meridian lines are exactly parallel to meridian line of map. Be certain "N" on dial is toward North on the map. Your bearing is read at the index pointer
    3. To check location while traveling from Y to X. Need two landmarks you can see, usually peaks, that you can pinpoint on map. Take bearing of each and plot bearings on map. Intersection of the two lines is your location

B. Repeat these steps using maps and compass

Application:

A. Have students determine bearing of X and Y.
    1. Check each student

B. Have students check location from peak W and Z.
    1. Check each student on both bearings

Test: (Oral)

A. Have students determine bearings between A-B, C-D and E-F
B. Have students determine their position when given bearings from M and N, O and P, R and S

LESSON PLAN

Course: Forest Technology
Lesson Title: Compass Course
Objective: To teach students to use hand compass and pacing
References: None
Materials Needed: Hand compass

Introduction:

A. Have demonstrated how to travel from A to B in classroom. Now let's try it in the field.

Presentation:

A. Review use of hand compass

B. Have students check pacing

Application:

A. Given the bearings and distances of a predetermined course and the students are requested to follow the course using the hand compass and pacing

B. Check with students at turning points to answer questions and correct errors

Test:

A. Students to compare their termination point with the correct point

B. Discuss how errors occurred and why there were differences

LESSON PLAN

Course: Forest Technology
Lesson Title: Contour Interpretation of Topographic Map
Objective: To teach the students how to read the contour lines on a topographic map
References: None
Materials Needed: Copies of 15 minute U.S.G.S. topographic maps.
(Copies of 7½ minute U.S.G.S. topographic maps for comparison)

Introduction:

The land features of an area, the topography, are depicted on the map by brown lines. These lines are called contour lines. Each line denotes one elevation.

Presentation and Application:

A. Distribute maps to students

B. Explain contour interval. Show on map where it is stated. Explain similarity to rings in the bathtub.

1. Explain that topographic model of campus was made from contour map
2. By using interpolation can determine elevation very closely

C. Indicate a level area and compare it to a steep area.

D. Indicate a ridge and a drainage and explain how they differ (as shown on map). Why isn't the ridge a drainage and the drainage a ridge?

E. Indicate a peak and a saddle and explain how they differ. Why is it important to know the difference?

F. Determine easiest route to walk from one point to another.

G. Distribute copies of a 7½ minute map so students can compare. Explain advantages and disadvantages.

Test:

A. In section X what are the elevations of the lowest point and highest point in the section?

B. What is the maximum elevation difference between Z and W?

C. What route would you pick to walk from Z to W?

LESSON PLAN

Course: Forest Technology
Lesson Title: Chain Saw Safety
Objective: To teach students to safely handle chain saw.
References: State of California, Department of Water Resources, Technical
Services Office, Mobile Equipment Branch
Chain Saw Operation Instructions, Revised July 1968
Materials Needed: Handout except for reference material

Introduction:

The chain saw can be a very dangerous tool if not handled carefully. Both the guest speaker, M. Goodell and timber faller told us that they had cut their leg within the past few months

Presentation and Application:

A. Read through the handout with the students

B. Answered questions and explained and expanded material for clarification

LESSON PLAN

Course: Forest Technology
Lesson Title: Applying for a Position
Objective: Instruct students in correct method to fill out application forms
References: None
Materials Needed: U.S. Forest Service Application forms

Introduction:

This may be only opportunity you have to sell yourself to the employer. Therefore you must do it completely and neatly.

Presentation and Application:

A. Distributed application forms

B. Discussed and explained the various parts of the application

C. Need to get forms filed early

LESSON PLAN

Course: Forest Technology
Lesson Title: Log Scaling
Objective: To teach students to scale logs. (single logs)
References: National Forest Log Scaling Handbook
Materials Needed: Scale stick, logs

Introduction:

The volume of logs needs to be known for inventory, payment and production reports. How do you express the volume of a log that is round, in terms of rectangular lumber?

Presentation:

A. Distribute scale sticks

B. Explain the development of log rule

C. Explain the scale stick

D. Explain how to measure the log

   1. Length with trim allowance
   2. Diameter measurement two ways because log is not round

Application:

A. Log dimensions were written on blackboard and students were requested to orally give the volume of the logs

B. Students were requested to scale some logs on campus. This activity was supervised very closely and questions answered and procedures demonstrated.

Test:

A. The results of B. were collected

B. Additional log dimensions were written on the blackboard and the students were requested to record and hand in the results.

LESSON PLAN

Course: Forest Technology
Lesson Title: Log Scaling
Objective: To teach students to scale logs (double logs) and acquaint them with deductions for defective logs
References: National Forest Log Scaling Handbook
Materials Needed: Scale Stick

Introduction:

Most logs are presented for scaling in condition that they must be scaled as two logs. The problem then is how to determine the diameter of the second log?

Presentation:

A. Return corrected papers. Discuss errors and indicate how they might have occurred.

B. Review material of 5-24-71

C. Diagram double log on blackboard and explain procedure to determine midpoint diameter. Explain midpoint is not necessarily equidistant from either end. The midpoint of a 30 foot log is located 14 feet from small end or 16 feet from large end.

D. Diagram defective logs on blackboard and explain how each is treated. The following methods should be diagramed and explained:

1. Squared Defect Method
2. Short Cut Procedure
3. Pie-Cut Method
4. Length-Deduction Method
5. Diameter-Deduction Method

Application:

A. Request students to determine volume of logs per the dimensions written on blackboard

B. Check students as work progresses.

LESSON PLAN

Course: Forest Technology
Lesson Title: Applying for A State Position (requested by student)
Objective: Instruct students in correct method of filling out State application forms
References: None
Materials Needed: State of California Employment Applications

Introduction:

A sloppy form will probably put you out of it right away. Be neat and very complete

Presentation and Application:

A. Distributed applications

B. Students filled out forms

Review of Course:

A. Students Reflection of Course

B. Improvements of Course

Students Plans:

A. Summer Employment

B. Future Education

B. FIRE SCIENCE

Course Outlines

Lesson Plans

The report on the Fire Science portion of the Indian Vocational Education Project falls into two major areas. First to be considered is the objectives of the course and the materials used to meet these objectives. Second is an evaluation of the course and recommendations for future programs.

The main objective of the course was to present to the student enough information to enable him to select or reject Fire Science as a course of study. This was accomplished in covering all the phases of Fire Science as a career. Emphasis was placed on job opportunities, qualifications, duties, challenges and rewards. To stimulate the students' interest, the objectives were covered by diversified methods. The student was exposed to the subject by lectures, films, slides, handouts, guest speakers from the field, and most of all by direct contact through field trips.

Field trips were conducted to the California Division of Forestry, the United States Forest Service, Sonora Fire Department, Fire Science Academy and Sierra Conservation Center. The students were able to see first hand the duties and living conditions associated with the field of Fire Science. They were able to discuss the field with career men. The major contribution of field trips was exposure to fire as an enemy.

Evaluation and recommendations for the class fall into three areas: student evaluation, course evaluation and recommendations. Student performance was selected on what seems to be the only concrete method of evaluation, by age and attendance. Age could immediately determine whether a student could find employment in the field. Class attendance was used to determine the interest level of the student. Regular attendance would certainly indicate some degree of interest, while irregular attendance would reflect a lack of motivation. This evaluation presents an impartial judgment on the part of the instructor. The evaluation of the course is a little more personal as it reflects feelings about its successes and shortcomings.

Courses such as these could be used in all kinds of careers and by many types of students.

"Fire can be as subtle as it usually is flagrant. Whether its effects are good and constructive, or cruel and destructive, depends on man's ability to anticipate, understand and control it. Ever since primitive man snatched a glowing ember from a lightning struck tree, he has alternated between having burned fingers and hot food, a warm domicile and charred hut, a glowing industrial furnace and a blazing manufacturing plant."

Henry F. Dietrich, M.D.

THE FIREFIGHTER'S JOB DESCRIPTION

I. Work performed

A. Saving life and effecting rescue (non-fire emergencies)

1. Applying artificial respiration
2. Administering first aid
3. Searching out victims
4. Removing victims
5. Effecting water rescue
6. Using life saving equipment
7. Effecting electrical rescue
8. Controlling panicky people
9. Performing heavy rescue, if required

B. Protecting life and property against fire

1. Receiving and responding to fire alarms
2. Making proper emergency entrance
3. Using portable extinguisher devices
4. Using ropes
5. Handling and using ropes properly
6. Handling and using hoses properly
7. Producing and applying efficient fire streams
8. Salvaging
9. Overhauling
10. Using tools and equipment properly
11. Driving and operating fire apparatus
12. Effecting proper ventilation
13. Effecting rescue from burning buildings
14. Administering first aid to the injured
15. Using protective equipment
16. Using radio equipment
17. Surveying properties for firefighting
18. Recognizing and preserving evidence of fire
19. Restoring apparatus equipment to service
20. Mixing and loading fire retardants
21. Manning lookouts if required

C. Noncombatants

1. Caring for the station
2. Caring for apparatus and equipment
3. Caring for and testing hose
4. Standing watch
5. Training and drilling under supervision
6. Performing public relations duties
7. Doing fire prevention and operation hazard inspection
8. Doing fire prevention activities, if required
9. Inspecting and reporting conditions of hydrants

Firefighter's Job Description (continued)

10. Reporting fire protection violations to proper authorities
11. Maintaining fire patrols

II. Performance Requirements

A. Exemplary conduct

1. Mannerisms
2. Appearance
3. Language
4. Social behavior
5. Habits
6. Professional Workmanship
7. Favorable community relations
8. Effective fire safety in a community
9. Knowing and abiding by department rules and regulations
10. Cooperation
11. Personal development
12. Personal and company safety

B. Job skills

1. Ability to handle and use hand and power tools and ropes
2. Ability to handle and use hose and hose accessories
3. Ability to handle and use ladders
4. Ability to climb and work on ladders
5. Ability to handle and use portable extinguishers
6. Ability to perform salvage and overhaul work
7. Ability to drive a fire truck and to operate a pump
8. Ability to do rescue and first aid work
9. Ability to do inspections and make surveys, if required
10. Ability to perform all station duties efficiently
11. Ability to use safety equipment
12. Ability to construct fire line
13. Ability to perform under extreme conditions
14. Ability to perform duties at night
15. Ability to lead bulldozer

C. Job Understanding

1. A good understanding of fire service functions, requirements, and responsibilities, and their relation to other municipal services

Job Understanding - (continued)

2. Necessary understanding of all jobs skills as listed
3. A good understanding of the construction and use of apparatus and equipment used in the fire services
4. Health habits, feeding, sleeping, insect and snake bites, self-protection
5. Basic fire behavior and fire control

D. Job Relations

1. Ability to assume minor responsibilities
2. Possession of proper characteristics and attitudes that will assure good company relations
3. Proper attitude toward community and will command respect for the fire service
4. Proper conduct at all times

E. Physical Fitness

1. Meeting medical and physical requirements
2. Exercising emotional control
3. Maintaining physical fitness

IVEP FIRE SCIENCE

Lecture (2) Hours

COURSE OBJECTIVE

1. To expose the student to a specific course in Fire Science to enable him to select or reject this career field.

SECONDARY OBJECTIVE

1. To make the student cognizant of his heritage and the the fact the American Indian is very adept at fire suppression.

MEASURABLE OBJECTIVES

1. Given a specific fire tool the student will know how it is used in fire control.
2. Each student will be able to describe tools and equipment used in the fire services.

COURSE OUTLINE

I. Living Conditions

   a. Separation from family
   b. Isolated area
   c. Barracks living
   d. Irregular meals
   e. Climate conditions
   f. Insects, snakes, poison oak

II. Fire Control

   a. Initial attack
   b. Attack methods
   c. Mop up
   d. Equipment

III. Fire Hydraulics

   a. Pascal's theory
   b. Hydrostatics
   c. Hydrodynamics
   d. Water

IV. Fire Behavior

   a. Climate conditions
   b. Terrain
   c. Fuel types

V. Pumps

- a. Centrifugal
  - 1. operation
  - 2. maintenance
- b. Rotary
  - 1. operation
  - 2. maintenance
- c. Reciprocating
  - 1. operation
  - 2. maintenance

VI. Fire Hoses

- a. Types
- b. Construction
- c. Sizes
- d. Rolling
- e. Maintenance
- f. Fittings

VII. Nozzles

- a. Types
- b. Maintenance

VIII. Equipment

- a. Fire Engines
  - 1. types
- b. Bulldozers
  - 1. Sizes
  - 2. Types
- c. Helicopters

IX. Fire Hand Tools

- a. Municipal (structure)
- b. Forestry (wildland)
- c. Rescue tools

X. Communications

- a. Kinds
  - 1. Visual
  - 2. Oral
  - 3. Feel
  - 4. Smell
  - 5. Sound

Communications - (continued)

- b. Commercial communications

XI. Radios

- a. Types
    - 1. Handi Talki
    - 2. Base
    - 3. Mobile
- b. Operation
- c. Maintenance

XII. Kinds of Maps

- a. Topo
    - 1. sizes
    - 2. divisions
    - 3. features

XIII. Portable Fire Extinguishers

- a. Types (classes)
- b. Operation
- c. Maintenance
- d. Location
- e. Classes of fires

XIV. Automatic Sprinklers

- a. History
- b. Kinds
- c. Heads
- d. Operation
- e. Testing
- f. Valves

XV. Water Supply

XVI. Safety

- a. Hand tools
- b. Ladders
- c. Equipment
- d. Power tools
- e. Lifting
- f. Rescue

XVII. Forms Used in Fire Services

XVIII. Heritage

- a. Other tribes
- b. Hot shot crews

First Week

Objective: Introduction of Instructor and Course Material

- I. Formal Introduction
  - A. Introduce instructor
    - 1. Background
    - 2. Expect from instructor in terms of instruction, personal help, kinds of field trips
- II. Introduction of Material
  - A. Two phases of fire control explanation
    - 1. Municipal, p. 6 appendix
    - 2. Wildland
  - B. Duties
    - 1. Life safety
    - 2. Property damage
  - C. Intention of course is an overview of fire science field
    - 1. Enable student to decide if he would be responsive to these duties
    - 2. Not designed for detailed study of fire science
  - D. Definition of fire

First Week 4/15

Objective: To acquaint the students with our natural resources and the agencies responsible for their protection.

Wild Land Fires

Film: California and Its Resources

- I. Take off from film with discussion of California's vast resources
  - A. Water
  - B. Timber
    - 1. Many years to grow, destroyed in seconds
- II. Resource need to protect wildland
  - A. U.S.F.S.
  - B. C.D.F.

(continued)

- C. Rural fire departments
- D. Volunteer fire departments
- E. Individual duties
    - 1. Same for posterity

III. Fire Behavior

- A. Types of fires
    - 1. ground
    - 2. crown
    - 3. surface
- B. Fire control methods
    - 1. direct
    - 2. indirect
- C. Fuels
    - 1. light
    - 2. medium
    - 3. heavy
- D. Weather
    - 1. temperature
    - 2. wind
    - 3. humidity
    - 4. terrain

Second Week

Objective: Familiarization of disadvantages and advantages of wild land fire fighter

Wild Land Fires

I. Firefighter

- A. Disadvantages
  1. Hours
  2. Exposure
  3. Living conditions
  4. Working conditions
  5. Hazards of occupation
- B. Advantages
  1. Public service
  2. Esprite de Corps
  3. Monetary
  4. Living conditions
  5. Working conditions
  6. Career status

Second Week 4/22

Objective: To expose the students to firefighting conditions

Film: The Nozzleman

I. Introduction to class activities

- A. Initial attack of mock fire

II. Attack procedures

- A. Code 3 to suction stub and hydrant
- B. Hook up
- C. Hose Lay (hydrant to fire)
- D. Pumping
- E. Drafting
- F. Students participation in all positions
- G. Operations, cease shutdown
- H. Break-down equipment
- I. Mop-up --- roll up hose, clean up fire ground
- J. Critique operations

III. Safety

- A. Around vehicles
- B. Fire streams
- C. Hoses
- D. Tools

Second Week 4/23

Objective: Observe actual living conditions and firefighting equipment

Field Trip

C.D.F. Headquarters station in Sonora

Appliance engineer acted as guide through the facilities

I. Garage
  - A. Viewed equipment
    - 1. Two brand new pieces of equipment

II. Recreation hall

III. Barracks

IV. Dining room and kitchen

V. Office

VI. Tour of grounds

VII. Discussion in mess hall with assistant ranger -- career opportunities of C.D.F.
  - A. Coffee served

VIII. Return to campus, critique trip

Third Week 4/27

Objective: To develop an understanding of fire hydraulics

Film: Water on the Fire

I. Basic Principles
  - A. Greek word, meaning
  - B. Pascal's theory
  - C. Liquids have weight

D. Hydrostatics and hydrodynamics

E. Static lift

II. What is water

A. Liquid

B. Steam Demonstration

C. Ice

D. Advantages

1. Cools fire
2. Easily transported
3. Cheap
4. Removes oxygen
5. Retards ignition

E. Disadvantages

1. Freezes
2. Evaporates

III. Application

A. Buckets

B. Rain

C. Hoses

Third Week

Objective: To develop an understanding of types of pumps used in the fire service

Demonstration: Hand pump, suction hose

STUDENT PERFORMANCE GOAL

Given: A pump, student will explain type and operation
Standard: With reasonable accuracy predetermined by the instructor

I. What is a pump?

A. How does it work?

II. Basic pumps

A. Rotary gear

1. How it works
2. Why it works
3. Advantages

- B. Centrifugal
    - 1. How it works
    - 2. Why it works
    - 3. Advantages
    - 4. Disadvantages

III. Demonstration

- A. Cut-away
- B. Pump parts
- C. Diagrams
- D. Valves

IV. Evaluation

- A. Students described operation of pump

Fourth Week

Objective: To familiarize the student with hoses and nozzles

Wild Land Fires

Film: Design for Disaster

I. Discussion of film

- A. Maintaining water stream

II. Hoses

- A. Care
- B. Storage
- C. Rolling
- D. Carrying
- E. Coupling
- F. Sizes
- G. Hose evolutions
- H. Wash hose
- I. Drying

III. Fittings

- A. Inspection
- B. Protection

Fourth Week (cont.)

V. Student Evaluation

A. Students couple and uncouple hoses and name the nozzles

Fourth Week

Objective: To acquaint the students with fire fighting tools. Demonstration of ladder, usage and hand tools

STUDENT PERFORMANCE GOAL

Given: Students will be able to use tools safely and efficiently

Standard: With reasonable accuracy predetermined by the instructor

I. Fire Department Tools

A. Hydrant wench

B. Hose clamp

C. Pick axe

D. Pike pole

E. Entry tool

F. Ladders

Film: Sharp as a Razor--Building the Fire Line

II. Forestry tools

A. Double-bitted axe

B. McLeod

C. Poluski

D. Brush hook

E. Shovel

F. California tool

III. Rescue tools

A. Scott Air-Pack

B. Resuscitator

C. Smoke ejector

D. Stretcher

Fourth Week (cont.)

- IV. Safety
  - A. With hand tools
  - B. Scott Air-Pack
  - C. Evaluation
    - 1. Students identified each tool, explained what each is used for. Demonstrated proper use of each.

Fourth Week

Objective: Observe a municipal fire department and talk to career municipal firemen

Field Trip

Sonora Fire Department. Guide was a career fireman

- I. Tour
  - A. Recreation room
  - B. Dining room
  - C. Kitchen
  - D. Dorm
  - E. Slide pole
    - 1. All descended
  - F. Alarm system
  - G. Engines
  - H. Equipment
  - I. Hand tools
  - J. Special tools
    - 1. Hydrovac
    - 2. Monitor
- II. Rap session with career firemen
- III. Critique trip

Fifth Week

Objectives: To make the student aware of the different means of communication. How we use them. How information can be mistranslated.

Fifth Week (cont.)

I. Types of communications

   A. Visual

      1. T.V.
      2. Newspapers
      3. Written
      4. Lights

   B. Sound

      1. Radio
      2. Oral
      3. Code
      4. Telegraph
      5. Telephone

   C. Feel

      1. Blind person

II. Commercial communications

   A. Billboards

   B. T.V. commercials

   C. Want ads

III. Demonstration

   A. Importance of accurate communications

IV. Radio communications

   A. Hand talki

   B. Base station

   C. Mobile unit

Fifth Week

Cancelled due to another instructor's field trip

Fifth Week

Objective: To view the training facilities and to learn how career firemen are trained.

Field Trip

Fire Science Academy. State Forest Ranger in charge of training acted as guide.

Fifth Week (cont.)

- I. Went into field
  - A. Heavy equipment in operation
  - B. Demonstration of air helmet
- II. Back to Academy
  - A. Went through facilities
    1. Classroom
    2. Dorm
    3. Recreation room
    4. Laboratory
    5. Repair shop
    6. Dining facilities
  - B. Observed demonstration
    1. Fire table
    2. Hydraulic facilities
    3. Structural fires
- III. Rap session with State Forest Ranger
  - A. One hour
  - B. Any topic of forestry

Sixth Week

Objective: Operation and maintenance of two-way radios

STUDENT PERFORMANCE GOAL

Given: Students will operate radio and perform minor maintenance

Standard: With reasonable accuracy predetermined by the instructor.

- I. Radio
  - A. Code sheet
    1. Main codes used
  - B. Operation
    1. Transmitting
    2. Receiving
    3. Adjusting radio
  - C. Maintenance
    1. Changing antenna
    2. Changing batteries
    3. Checking loose connections

Sixth Week (cont.)

- D. Base station
- E. Mobile unit
- F. Handi Talki
- G. Safety

II. Demonstration

- A. Use
- B. Maintenance
- C. Evaluations
    - 1. Students changed antennas, batteries, made checks and tested equipment

Sixth Week

Class cancelled

Sixth Week

Objective: To observe the techniques used in fire dispatch

Field Trip

U.S.F.S. Dispatch Office. U.S.F.S. Dispatcher acted as narrator

I. Overview of equipment

II. Calls

- A. Received
- B. Transmitted
- C. Logged
- D. Radio
- E. Phone

III. Vehicle Dispatch

- A. Types
- B. Locations

IV. Air craft dispatch

- A. Types
- B. Locations

Sixth Week (cont.)

V. Discussion with dispatcher

VI. Critique on trip

Seventh Week

Objective: To acquaint the student with topographical maps and how they are used in fire control.

STUDENT PERFORMANCE GOAL

Given: Students will be able to locate features on map accurately

Standard: Oral quiz

I. Introduction with handout

  A. Topo maps in fire control

II. Maps

  A. Different kinds

III. Topo maps

  A. Features

  B. How to use

  C. Why used

  D. Fire location

  E. Fire line construction

  F. Sizes

IV. Demonstration on use

  A. Locate

    1. Water
    2. Heliport
    3. Ridges
    4. River canyons
    5. Mines
    6. Boundaries
    7. Railroads

V. Evaluation

  A. Each student located fire and worked fire problems constructing dozer line

Seventh Week

Objective: Acquaint the students with the use of aircraft in fire control

Seventh Week (cont.)

- I. Film on airdrops
- II. Photos of aircraft
- III. Guest speaker C.D.F.
  - A. Air operations
  - B. Loading and mixing retardants
  - C. Types of aircraft
  - D. Kinds of retardants
  - E. Drop procedures
  - F. Safety
  - G. Open discussion
- IV. Discussion of films and guest speaker's information

Seventh Week

Objective: To observe the training of a municipal fire department

Field Trip

Sierra Conservation Center Fire Department

- I. Observed suppression
  - A. Structure fires
    - 1. Two separate fires
- II. Firemen participated
- III. Observed oil fires
  - A. Techniques in extinguishing
- IV. Critique of trip

Eighth Week

Objectives: Use and maintenance of portable fire extinguishers

STUDENT PERFORMANCE GOAL

Given: A fire extinguisher the student will demonstrate how it is used and what kind of fire used on

- I. Types
  - A. Water

Eighth Week (cont.)

- B. Chemical
- C. Powder
- D. How used
- E. Where used
- F. Maintenance

II. Back pump

- A. How used
- B. Where used
- C. Maintenance

III. Location

- A. Height from floor
- B. Travel distance

IV. Classes of fire

- A. Electric
- B. Flammable liquids
- C. Metal
- D. Combustible materials

V. Evaluation

- A. Class will identify the classes of extinguishers and classes of fires it is used on and demonstrate how to use the extinguisher

Eighth Week

Objective: To introduce the students to the type of sprinkler systems

I. Early sprinkling systems

II. Sprinkler heads

- A. Fusable links
- B. Pendant
- C. Upright

Eighth Week (cont.)

- III. Types of systems
  - A. Wet pipe
  - B. Dry pipe
  - C. Operation of each
- IV. Advantages
  - A. Life loss
  - B. Property loss
  - C. Insurance rates
  - D. Silent sentinel
- V. Water system
  - A. O.S.Y. Valve
  - B. Flow meter
  - C. Fire Department connections
- VI. Water supply
  - A. Reservoir
  - B. Storage tank
  - C. Hydrant

Ninth Week

Objective: To review the course and relate to individual students heritage

- I. Overview of fire science
- II. Preparation of forms
  - A. Application for employment
  - B. Activity report
  - C. Fire report
- III. Heritage
  - A. Esprite de Corps
  - B. Outdoor activities
  - C. Hotshot crews

Ninth Week (cont.)

1. Arizona
2. Flown to augment fire fighting teams

IV. Discussion of pros and cons of fire fighting as a career.

EXAMPLE OF GOVERNMENT FIRE PROTECTION AGENCY

United States Forest Service

National Forest -- Y

This National Forest consists of approximately 500,000 acres of timber and wildland. This being a resort area with high demands upon the environment for recreation needs, there are many campgrounds, picnic areas, resorts and assorted recreation facilities. These, of course, tax the manpower and resources of the fire protection agency to provide adequate and efficient fire prevention and protection. A breakdown of the agency is as follows:

Protection area -- 800,000 acres

Manpower -- 50 positions

9 -- lookout
15 -- lookout
2 -- dispatchers

The remainder of the positions are in fire crews.

Equipment

3 heavy tankers	300 - 500 gallon class
5 medium tankers	200 gallon class

Miscellaneous pickups, sedans and road building equipment

Aircraft

One PBY manned during fire season.

Helicopters

One light.

Stations
4 major fire stations
9 small stations

Pay Scale - $5524 per year

Most firefighters are seasonal; most of these are returnees and students or teachers. Because of the employment picture at the present time, the prospects for employment are bleak. The agency is at present operating at 40% of desired manpower requirements.

EXAMPLE OF A MUNICIPAL FIRE DEPARTMENT

U.S. City X Population 170,000
Area - 41.78 square miles

This city is located in a large valley and is an important agricultural and wine producing center. About 80% of the city is closely built. There are the usual amount of tall story buildings such as, offices, hotels, etc. As can be expected in any large U.S. city, a number of shopping centers and malls have been constructed, each with its own fire protection problems.

Positions -- 246 full paid members

Fire officers

Chief - 8
Company - 46
Firefighters and drivers - 180
Non-fire force - 30

Equipment

11 engine pumpers
10 trucks
crash trucks

The fire force is divided into two districts for fire fighting purposes.

Stations - ten in service
Work week - 56 hours
Number of men on duty - 65 at all times

The department is equipped with a drill tower, fire building and grounds and equipment for in-service training. Four days per week is spent in training in the tower. Each fireman receives 8 - 10 hours training monthly in quarters. Each new member receives six weeks extensive training before assignment to a company.

Benefits -- These are pretty standard for most large fire departments; sick leave, paid vacation, retirement, advancement.

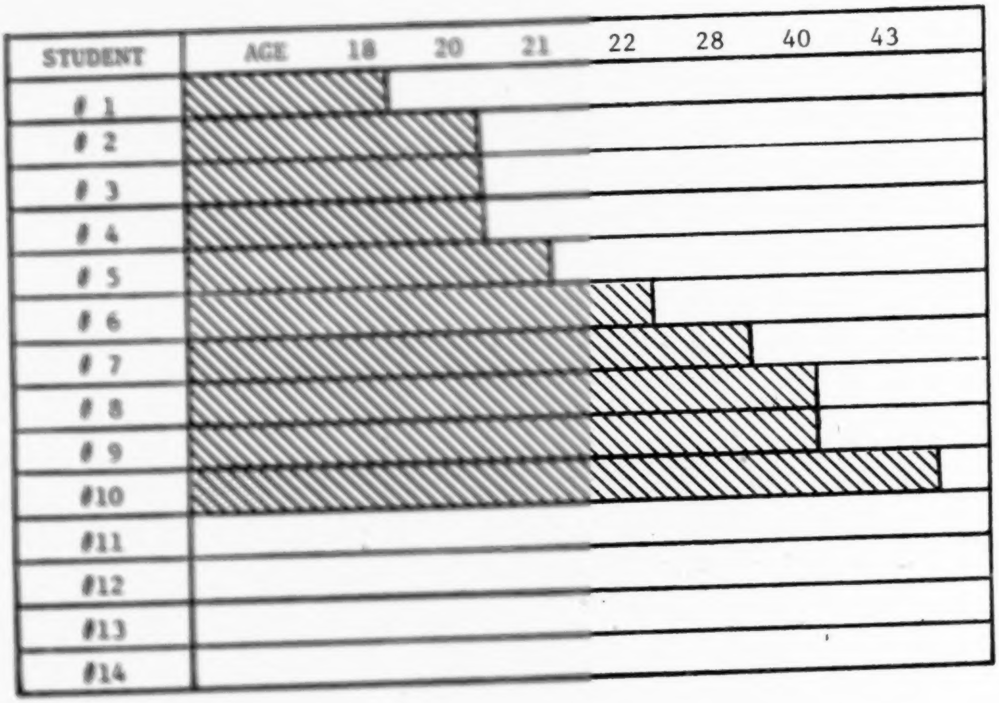
Officer Positions -- These positions are most always filled from the ranks and are a good incentive for the fireman to study to advance himself.

Student Evaluation

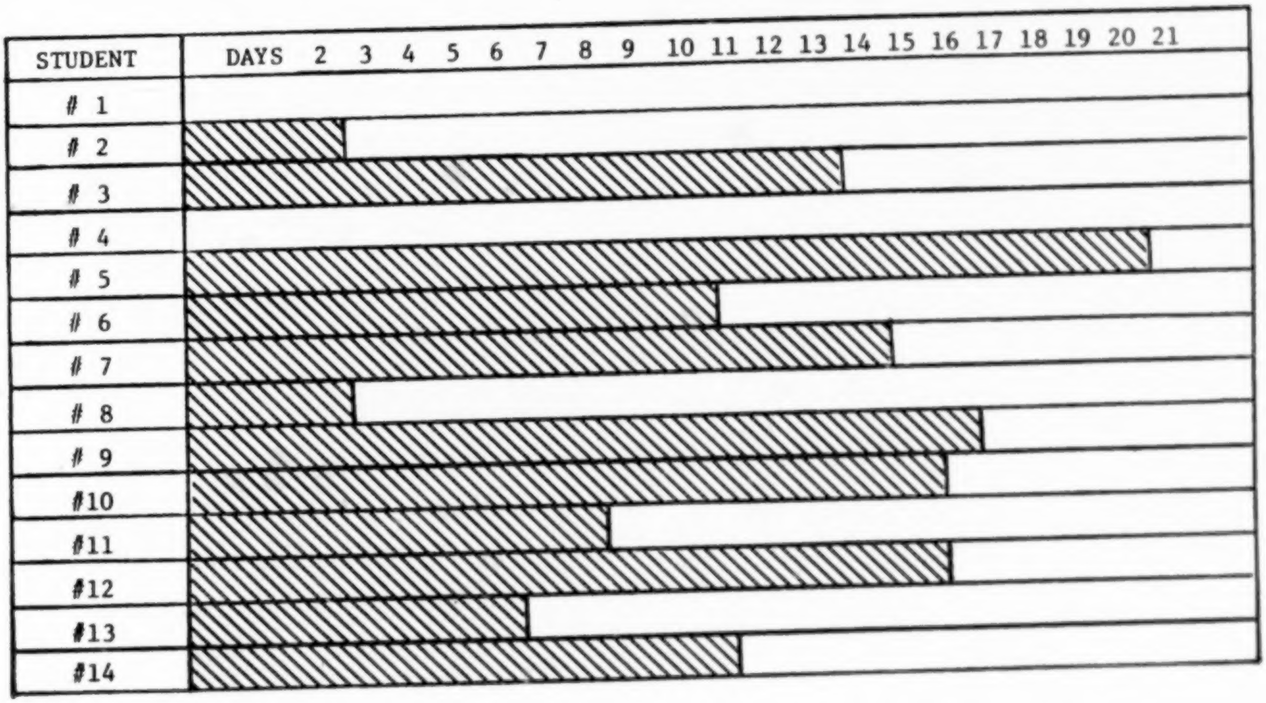
The Student graphs were devised to help indicate student motivation. Since the class was not evaluated by test scores, I felt one way a student interest level would be evaluated is by attendance. The first graph is an age profile. It indicates a span from 18 to 43 years old. Seven of the students are under 30 years of age, four are over, three have no age stated. It should be noted here the age limit for career firemen is 31 years. Therefore, four students would not qualify as career firemen. This would be a good indicator of the necessity of careful screening of students' ages, to prevent a student from attending a class that would not qualify him for employment. The attendance profile revealed that two students did not show, two students dropped after two classes. The attendance of the remaining ten (10) students varied greatly. The field trip graph revealed that four (4) students, the two that did not show and the two that dropped, did not attend any trips. The rest of the students attended from one (1) to five (5) field trips. It is my opinion where there appears to be a lack of motivation in field trips that it's not entirely the fault of the student. In some cases, there was not enough previous planning by the instructor to allow the student enough advance notice. Trips were scheduled and not kept. Therefore, some of the students began to lose interest after a few disappointments. This is an area that could use special attention in the future programs.

In the final analysis, a correlation between attendance and field trips was made on an individual student basis. Attendance in a course such as this is very important. Without proper attendance, a student would not receive enough information to qualify him for a valid career choice. The graphs pointed to the fact that good daily attendance usually resulted in good field trip attendance. It was found that five students attended classes over 75% of the time, which would denote a high level of interest in the career field. Of these five, however, two were forty (40) years of age and over the age limit for career employment. They might, however, work well in temporary employment, such as Indian Hot Shot Crews. It would appear then, that only four of the fourteen students attended class often enough to indicate a level of interest sufficient to pursue the fire science field.

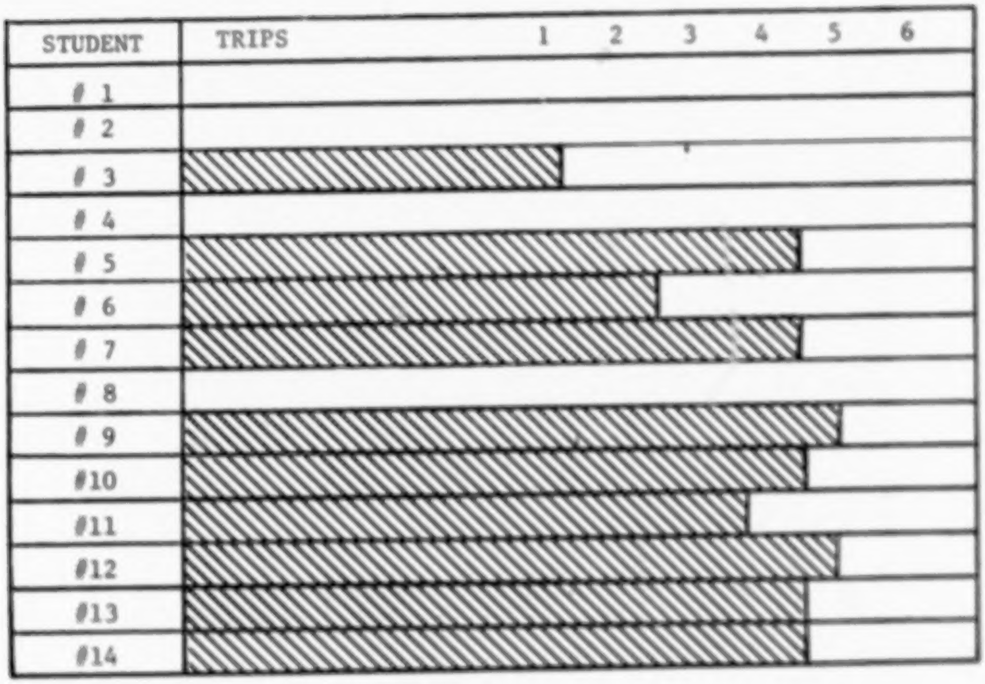
AGE PROFILE



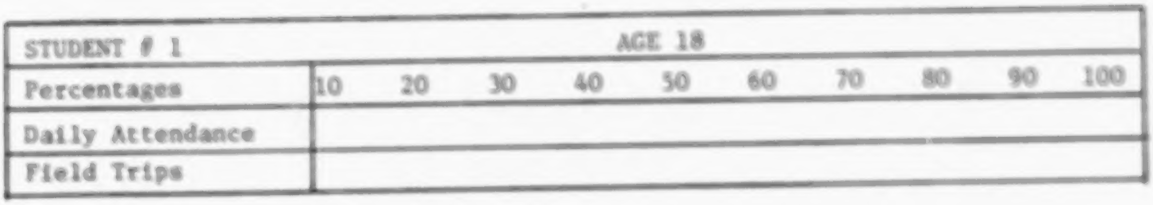
ATTENDANCE PROFILE



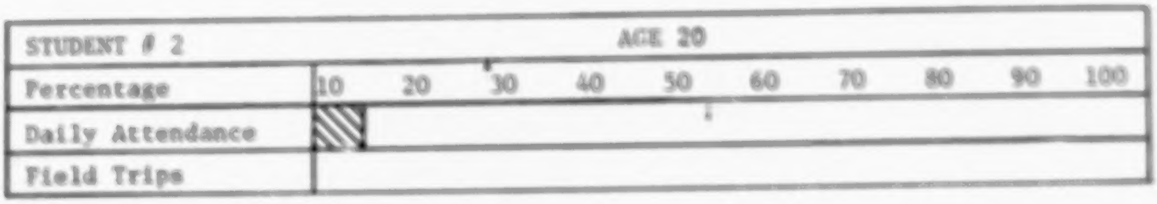
FIELD TRIP ATTENDANCE



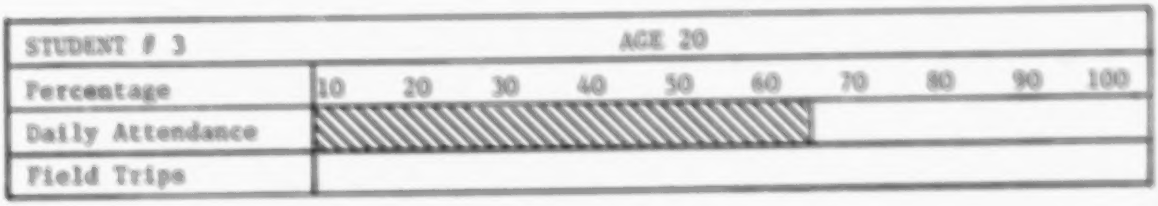
INDIVIDUAL STUDENT ATTENDANCE PROFILES



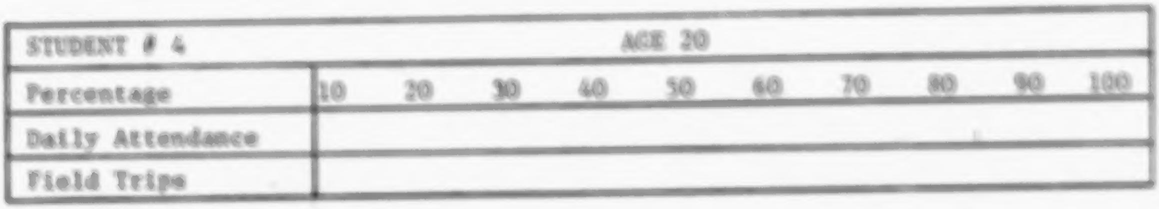
Student did not show.



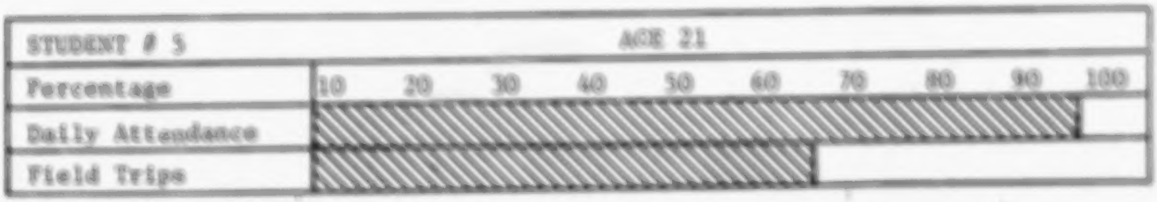
Student dropped after two classes.

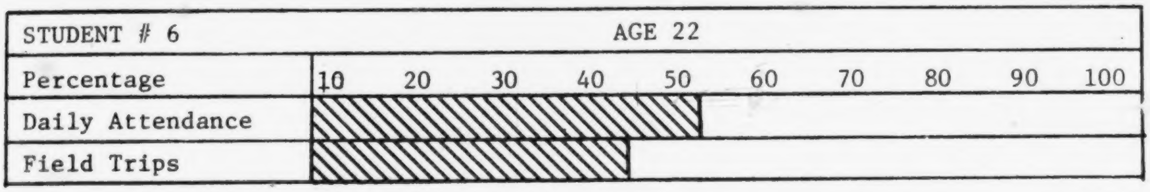


Weak in attendance. Potential fair.

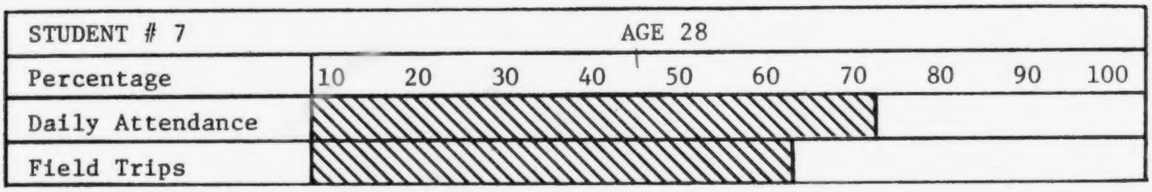


Student did not show.

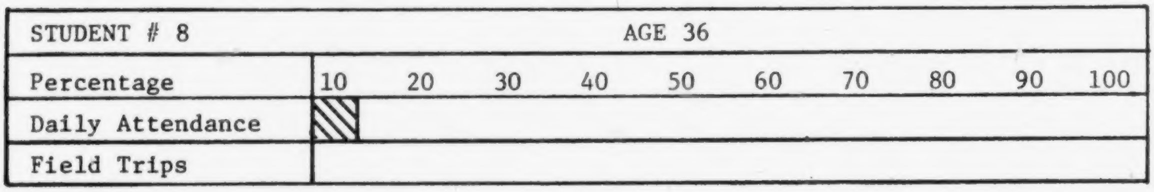




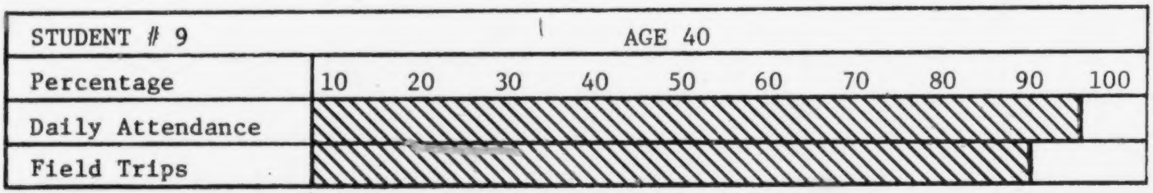
Student Attendance poor. Potential poor



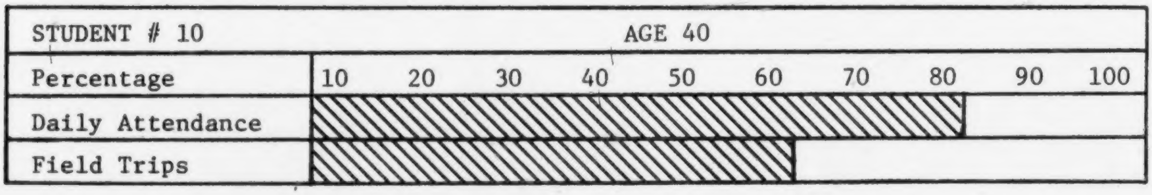
Student Attendance good. Field trip attendance good. Student potential good.



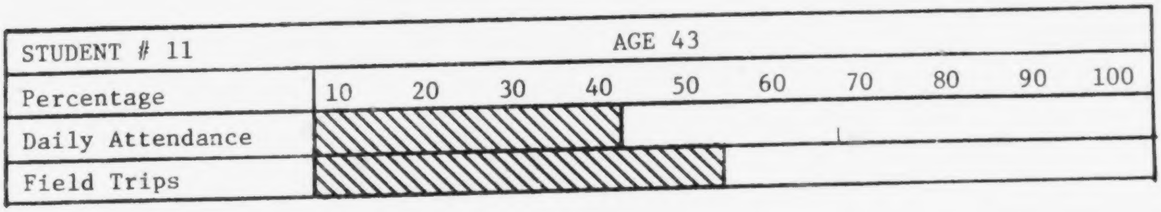
Student dropped after two classes.



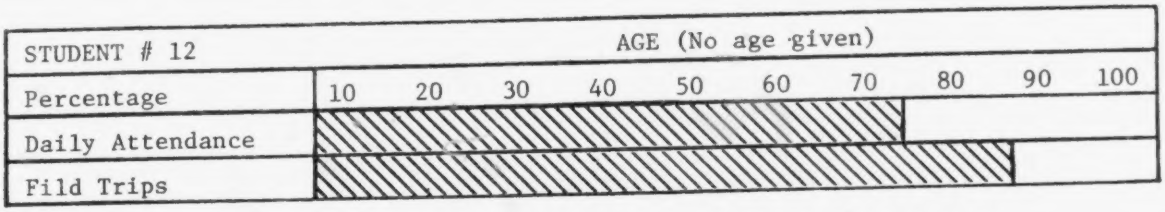
Student attendance very good. Field trip attendance very good. No potential. over age.



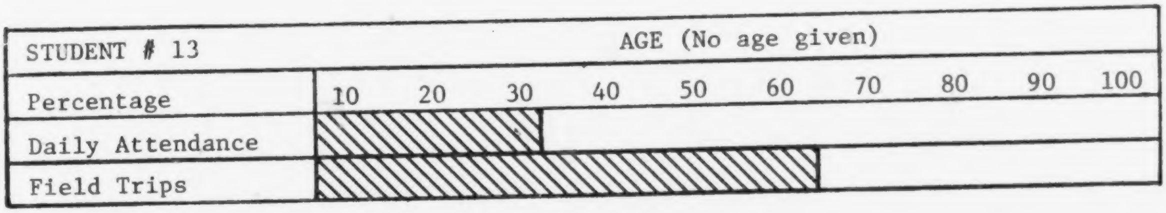
Student attendance good. Field trip attendance good. No potential. Over age.



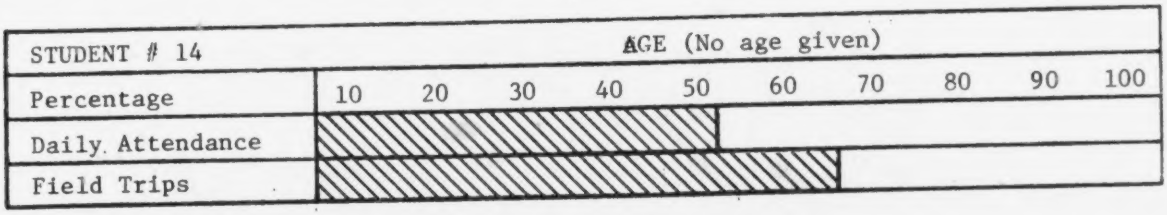
No potential. Over Age.



Student attendance good. Field trips very good. Good potential.



Poor Attendance. Poor potential.



Attendance fair. Fair potential.

EVALUATION

Problems encountered

I feel there were seven (7) problem areas that interfered with the success of the program.

One of the main problems was after the course of instruction had been formulated and made into a presentable core of instruction, the late arrival and settling in of the students at once required changes in the approach to the subject matter. This, of course, meant the instructor was shifting his course before it got started; which meant cutting short or leaving out entirely, portions previously intended for presentation.

The age and maturity of some of the students created a problem as some of the students were past the age of recruitment and it soon became apparent to both the instructor and the students that they would, if they should choose this as a career field, in fact be training for a job that did not exist as far as they were concerned. Knowledge of this, I feel, created a negative reaction.

Maturity was a factor to take into consideration as previous knowledge of some areas, especially in the older students, caused a change in the approach to the subject.

It is felt by the instructor that poor attendance was a negative factor. Some students had a very lackadaisical attitude toward attending classes. It is very demoralizing to an instructor who has prepared a demonstration, etc., to have only a few of the class attend. Some students attendance was such that a selection of career would be unfair.

Lack of protective clothing and adequate equipment caused changes in the objectives because it was not practical to ask a student to perform hazardous or dirty jobs in his street clothes. Safety shoes, coveralls, gloves, hard hats, bump hats, safety glasses should be available prior to instruction time.

There were some personal problems on the part of the students which affected their learning process. There were times when automobile breakdowns caused students to miss classes. Also, inability of some to accept the responsibility for allowing sufficient time for personal needs before class created tardiness (late sleeping), driving to class.

Closer screening of applicants would be helpful, as perhaps the overage student would be informed and not accepted into a program for which he was past the age of recruitment at conclusion of training. Also, some applicants with specific problems would not be accepted into the program.

Field trips were somewhat of a problem as the motivation and attendance on some trips were below standards and in some instances were cancelled because of low attendance. This was not entirely the fault of the class. There was some difficulty on the part of the instructor in scheduling the trips and arranging for transportation.

Areas to be Strengthened and How

Some of the areas to be strengthened are several, one is the scheduling of field trips and transportation. Instructors should make arrangements where possible well in advance to allow for adjustments in instruction and preparation. Travel requests should be processed well within minimum allowable time necessary for processing requests and scheduling transportation.

A process of establishing student performance goals, standards and evaluations. Each instructor should make evaluations and record progress of each student.

Some means of projecting needs for equipment, clothing, textbooks, supplement material. Have material available or source predetermined.

Recruitment well in advance of school term allowing for settling in, adjustments to environment, health problems, dental, subsistence, transportation, etc.

Stringent screening of applicants for program in regards to health, age, personal situation and problems.

General Successes

The program was a success in most areas. Most of the problems encountered early in the project were corrected and the program made good progress.

The core development was successful and very adequate in terms of objectives, material and content.

Student Potential

The students potential can be determined by his age and physical fitness. During the course of instruction, students may eliminate themselves by manifesting a fear of fire or indicating a lack of interest.

SUPPLEMENTARY MATERIAL

Slides -- Tray #1

Fire Engines #1 - 25

Equipment #47 - 59

Pumps #60 - 73

Portable Fire Extinguishers #74 - 80

Slides -- Tray #2

Communications #1 - 9

Look out #10 - 20

Fire streams #21 - 31

Sprinkler Systems #32 - 41

Fire Academy #41 - 45

Hydrants #46 - 48

Fuels #49 - 53

Hand Tools #54 - 57

Ladders #58 - 59

Rescue Tools #60 - 64

Air Drops, Air Craft #65 - 70

Movie -- 8mm

Aircraft in Fire Control

Miscellaneous movie 8mm

Color Prints

Portable fire extinguishers

HANDOUTS

1. Installation of Portable Fire Extinguishers 1970 NFPA
2. Heavy Equipment - Fire Line Safety
3. Introduction to Employment - California Division of Forestry
4. Forest Fire Fighting Fundamentals-
   California Division of Forestry
5. Water vs. Fire - U.S. Forest Service
6. Introduction to the Fundamentals of Fire Behavior -
   U.S. Forest Service
7. Word Definition
8. Fire Concept Definitions
9. Radio Code
10. Fire Report, Activity Card - California Division of Forestry
11. Gamewell Transmitter -- Positive Non-Interferring
    The Gamewell Fire Alarm Telegraph Co., Newton Upper Falls, Mass.
12. Peerless Non-Interferring Successive Box
    Gamewell Fire Alarm Telegraph Co., Newton Upper Falls, Mass.
13. Murphy Ranch Fire
14. Topog Map
15. Topog handout
16. Microphone Technique
17. Fire Alarm Box, The Gamewell Co., N.U.F. 64, Massachusetts
18. Forcible Entry Manual, Pry-Axe Inc., 260 N. Fairfield Ave.,
    Chicago, Illinois 60612
19. M.S.A. Air Masks, Albro Fire Equipment Co., 4224 Holden Street,
    Emeryville, California
20. Career Firemen

Reference Material

1. Fire protection handbook

   National Fire Protection, 1970

2. Forest Fire Control and Use

   Davis

3. Principles of Fire Management

   C.D.F.

4. California Fire Training Program, Block 3, Book 1 & 2

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Introduction

Objectives -- To introduce the instructor and course

References

Materials Needed -- Copies of books that will be used in the course

Introduction

1. Instructor (Put name on chalk board)
    - A. Education
    - B. Background -- years of experience
    - C. Type of experience -- relate particular fire
    - D. Expectations -- what class can expect from instructor
        1. Qualified instruction
        2. Promptness
        3. Personal help -- assistance at anytime
        4. Fairness
        5. Prepared for lesson
2. Class
    - A. Have each student introduce himself
    - B. Expectations
        1. Attendance
        2. Promptness
        3. Preparation

Presentation

1. Major kinds of fire services
    - A. Municipal
        1. City
        2. Private - Industrial
        3. Volunteer

    -- Explain each one
    Mutual aid
    Explain
2. Duties of a fire department
    - A. Life safety -- first consideration
        1. Rescue -- fire, non-fire

Duties (cont.)

B. Property

C. Fire prevention

3. Course intent -- purpose of the course

A. Overview of fire services as a career

B. Not all adaptable to conditions

4. Definition of fire

A. Fire triangle -- how broken

B. What it is

5. List of materials needed by students

A. Loose leaf binder

B. Protective clothing

1. Hard hat
2. Boots
3. Gloves
4. Goggles
5. Coveralls

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Wild Land Fires

Objective -- To instill an appreciation for the natural resources and their protection

References -- Principles of forest fire management

Materials Needed

1. Film -- California and Its Resources
2. 16mm projector
3. Screen

Introduction

1. Show film
2. Introduction into California's resources
   - A. The abundant supply of fresh water
     1. Lakes -- Shasta, Folsom
     2. Rivers -- Stanislaus, Feather
     3. Canals -- Mendota
   - B. Timber
     1. Redwoods
     2. Fir stands
     3. Pine
     4. Cedar

     Explain to class -- Many thousands of years to grow - can be destroyed in a few seconds by carelessness or lightning
   - C. Minerals
     1. Gold -- explain history
     2. Boron -- location
     3. Oil -- location, brief history
3. Resources must be protected -- explain why and how

Presentation

1. Resources and manpower needed for protection
   - A. U.S.F.S.
     1. Organizational structure
     2. Types of equipment
   - B. California Division of Forestry
     1. Organizational structure
     2. Types of equipment

Presentation (cont.)

C. City fire protection

D. Rural fire departments

E. Volunteer fire departments -- give examples
1. Members -- how selected
2. Response procedures

2. Fire behavior

A. Types of fires
1. Ground
2. Crown Explain each
3. Surface

B. Methods of control
1. Direct
a. advantages Explain
b. disadvantages each method
2. Indirect
a. advantages Where &
b. disadvantages how used

3. Fuels

A. Light
1. Grass
2. Paper
3. Pine needles

B. Medium
1. Brush

C. Heavy
1. Timber
2. Downed logs

4. Weather

A. Temperature
1. Effects on fuel
2. Effects on fire

B. Wind
1. Uphill -- day
2. Downhill -- night
3. Special

C. Humidity -- explain what it is

D. Terrain
1. Effects

Application -- Demonstrate types of forest fuels

Evaluation -- Oral quiz on fuel types

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Wild Land Fires

Objective -- Familiarization with the advantages and disadvantages of being a firefighter.

References

Materials Needed

Introduction -- Explain the conditions in which the fireman works and lives.

Presentation

1. Fire Fighting Conditions
    A. Disadvantages
        1. Hours -- long, little sleep, tired
        2. Exposure
            a. insects
            b. poison oak
            c. climatic conditions
        3. Living Conditions -- explain
            a. isolated areas
            b. away from home
            c. barracks living
        4. Hazards of occupation
            a. burns
            b. cuts
            c. snake bites
            d. Smoke inhalation
            e. falls

    B. Advantages
        1. Serving the community
        2. Pride in oneself and team
        3. Good pay
        4. Hot meals
            a. clean - bed
            b. recreation opportunities
            c. structured hours
        5. Healthy environment

    C. Career status
        1. Opportunity for advancement
        2. Permanent status
        3. Fringe benefits

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- The Fire Ground

Objectives -- To expose the students to fire fighting conditions.

References

Materials Needed -- Turnouts for all students. Film - The Nozzleman. 16mm projector. Screen. Hand out - Hand Signals for Engineer.

Introduction

1. Film -- The Nozzleman
    - A. What to look for in film
2. Brief discussion of film
3. Explain activities for remainder of class
    - A. Attack on mock fire

Presentation

1. How to handle a live hose
    - A. Procedure
    - B. Hand signals
2. Attack procedures
    - A. Hook up - connections, nozzle, hydrant
    - B. Hose lay
        - 1. How to make lay
        - 2. Size of hose to be used
    - C. Pumping
        - 1. Explain operation
    - D. Drafting
        - 1. Explain
            - a. Why
            - b. Where - job is located
            - c. How

Presentation (cont.)

4. Safety

   A. Vehicles
      1. Backing up
      2. Chocking wheels
      3. Seat belts
      4. Speed limits

   B. Fire streams
      1. Excessive damage
      2. Personal injury

   C. Hoses
      1. Escape hose
      2. Rupture

   D. Tools
      1. Hydrant wrench
      2. Axes
      3. Pike pole
      4. Entry tool

Application -- Code 3 attack on mock fire - hose lay, pumped, drafted, maintained fire stream; each student rotating positions. Students assisted breakdown - hose rolling, mop up, and cleaning hose and equipment.

Evaluation -- Critique of operations

LESSON PLAN

(2 hours)

Course -- Fire Science

Lesson Title -- Fire Hydraulics

Objective -- To develop an understanding of fire hydraulics

Reference -- Pumps, Audel

Materials Needed -

1. Film - Water on Fire
2. 16mm projector
3. Screen
4. Hand outs
5. Pump parts

Introduction --

1. What is water? (Chemical make up) Put on chalkboard
2. What are hydraulics? (Greek word)

Presentation

1. Pascal's Theory -- put diagram on chalkboard
2. Weight of Water
    - A. Pumping downhill — Explain effects of weight in pumping operations
    - B. Pumping uphill
    - C. Hydrostatics - Explain each one
    - D. Hydrodynamics
    - E. Friction loss
        1. What it is
        2. Its effects on fire stream
    - F. Static lift
3. Water in three forms
    - A. Liquid — Demonstration - Glass of water; clear, flows easily, drinkable. Water on burner becomes steam, evaporates. Ice-water, solid form.
    - B. Steam
    - C. Ice
4. Advantages of water
    - A. Cools fire, removes heat
        1. Light match - emerge in water

Presentation (cont.)

- B. Easily transported - truck, aircraft
- C. Cheap, availability, almost anywhere; pond, lake, pool
- D. Removes oxygen - explain how
- E. Retards ignition

5. Disadvantages of water
    - A. Freezes -- refer to ice cube
    - B. Evaporates -- refer to heated water

Application

1. Bucket -- put water in bucket to demonstrate weight and transportation; bucket brigades
2. Rain -- sprinkle water on object
3. Hoses -- garden hose

Evaluation

Oral quiz -- Water and its effects

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Pumps

Objective -- To develop an understanding of types of pumps used in the fire services.

Reference -- Pumps, Audel

Materials Needed --

1. Rotary gear pump
2. Centrifugal pump
3. Tire pump
4. Handouts
5. Impellers

Introduction -- Types of pumps and what a pump does.

Presentation --

1. Rotary pump
   - A. Operation - how it works
   - B. Disassembly
   - C. Inspection and diagnosing problems
   - D. Assembly
   - E. Disadvantages
     1. Less volume
     2. Less pressure
   - F. Advantages
     1. Positive displacement
     2. Less maintenance
2. Centrifugal
   - A. Operation
     1. How it works
     2. Priming
     3. Stages
   - B. Maintenance
     1. Packing, gland
   - C. Disassembly
   - D. Inspection
   - E. Assembly

Presentation (cont.)

F. Diagnosing failures

G. Advantages
   1. Pressure -- several stages
   2. Volume

H. Disadvantages
   1. Requires priming
   2. Cannot tolerate contamination
      a. sand, rocks, etc.

Application

Demonstration of pump parts. Cut away of 750 gpm pump. Diagrams -- handouts, and chalkboard valves.

Evaluation

Students described operation of pump.

LESSON PLAN

(2 hours)

Course -- Fire Science

Lesson Title -- Fire hoses and nozzles

Objective -- To familiarize students with fire hoses and nozzles used in the fire services.

References

Materials Needed

1. Film -- Design for Disaster
2. 16mm projector
3. Screen
4. Hoses - 2½", 1½"

Introduction

Description of hoses and nozzles used.

Presentation

1. Construction and sizes
   - A. Care -- avoid sharp objects: rocks, etc.
   - B. Storage -- warm dry place: rack
   - C. Rolling -- proper way to roll hose, types of rolls
   - D. Carrying -- ways to carry hose
   - E. Couplings -- care protection
   - F. Sizes
   - G. Hose evolutions
     1. Types
   - H. Washing
   - I. Drying
2. Fittings
   - A. Inspection
     1. Threads
     2. Gaskets
     3. Freedom to turn
3. Nozzles
   - A. Kinds
     1. Mystry
     2. Straight
     3. Foam

Presentation (cont.)

Application

Pass nozzles around to allow students to get the feel.

Evaluation

Students couple hose, roll hose, explain hose.

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Tools of the Trade

Objective -- To acquaint the students with fire fighting tools and ladders.

References -- California Fire Training Program. Block 3, Book 1 & 2.

Materials Needed

1. Film - Sharp as a Razor
2. 16mm projector
3. Screen
4. Tools

Presentation

1. How to use
   - A. Hydrant wrench
   - B. Hose clamp
   - C. Pick axe
   - D. Pike pole
   - E. Entry tool
   - F. Ladders
     1. Erection
     2. Storage
2. How to use
   - A. Double bitted axe
   - B. McLeod
   - C. Poluski
   - D. Brush hook
   - E. Round point shovel
   - F. California tool
3. Rescue tools
   - A. Scott Air pack
     1. Adjustments
     2. Air supply
     3. Tight seal
     4. Alarm

Presentation (cont.)

B. Resuscitator

1. Operation
2. Procedure
3. Storage

C. Smoke ejector
1. Operation
2. Erection
3. Storage

D. Stretcher

1. Carrying
2. Placing victim
3. Storage

4. Safety

A. Hand tools

B. Rescue equipment

C. Ladders

Application

Students work with a fire department in using above tools.

Evaluation

Students identify tools and equipment and explain how each one is used.

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Communications

Objectives -- To familiarize the class with the various means of communicating.

References -- Microphone Techniques

Materials Needed - Hand outs

1. Radio code
2. Word definition

Introduction

There are many ways in which humans communicate with each other. Oral, written visual and several others. We should be familiar with these, especially mobile radio because it is used extensively in fire control.

Presentation

1. Types of Communication
    - A. Visual
        1. TV
        2. Newspapers
            - a. Public relations (favorable-unfavorable)
        3. Written
            - a. orders
            - b. fire plans
            - c. instructions
        4. Lights
            - a. blinker signals
            - b. traffic control (aircraft-auto)
    - B. Sound
        1. Radio
            - a. weather reports
            - b. news releases
        2. Oral
            - a. ordeals
            - b. instructions
        3. Code
            - a. morse
            - b. aircraft
            - c. ship
        4. Telegraph
            - a. quick communication
        5. Telephone
            - a. fire reports
            - b. weather reports
            - c. progress reports
            - d. essential means of communicating

Presentation (cont.)

- C. Touch
  - 1. Braille

2. Commercial Communcations

- A. Bill boards
- B. TV commercials
- C. Want ads

3. Radio Communications

- A. Handi-Talki
  - 1. Operations
  - 2. Disassembly
  - 3. Change batteries
  - 4. Assembly
  - 5. Care
- B. Base Station
  - 1. Operation
  - 2. Radio log
  - 3. Maintenance
- C. Mobile Unit
  - 1. Operation
  - 2. Care

Application

Demonstration on importance of accurate communications.

1. How written instructions can be misinterpreted
2. Make certain instructions understood. (repeat)

Evaluation

Had class pass oral instruction to each other. Critique - how instructions not recognizable after being repeated 8 times.

Class cancelled this date due to another instructor's field trip.

(Reason)

The Heavy Equipment instructor had scheduled a field trip to Sharpe Army Depot. It was felt combining both classes into this trip would be beneficial to all concerned.

LESSON PLAN

(2 hours)

Course -- Fire Science

Lesson Title -- Radio Operation & Maintenance

Objective -- To acquaint students with operation and minor maintenance of radios

References -- Microphone Techniques

Materials Needed -- Handi-Talki's
Hand out -- 1. Microphone Techniques
2. Code sheet
Base Station
Mobile Unit

Introduction

Importance of good radio techniques. Could be life or death situation.

Presentation

1. Radio Code Sheet
    - A. Know and use most common ones
    - B. Automatic Reaction
2. Base Station
    - A. Operation
    - B. Transmitting
    - C. Receiving
    - D. Adjusting
3. Mobile Unit
    - A. Operation
    - B. Transmitting
    - C. Receiving
    - D. Adjusting
        1. Changing channels
        2. Changing locations
        3. Maintenance
4. Handi-Talki
    - A. Operation
    - B. Transmitting

Presentation (cont.)

C. Receiving

D. Care
   1. Rough usage
   2. Storage

E. Maintenance
   1. Changing batteries
   2. Changing antenna
   3. Checking connections

Application

Broke class into two groups

Group A - Handi-Talki
Group B - Mobile Unit
Transmitted and received - orders and instructions

Evaluation

Students disassembled, removed and replace batteries. Reassembled Handi-Talki.

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Topographical Maps

Objective -- To emphasize the importance of knowing how to read a Topo map.

Reference -- Hand out - Topo map reading.

Materials Needed - Topo map, road map, plastic overlay, grease pencil, hand out - topo map, topo map reading, and Murphy Ranch fire.

Introduction

History of map making and reasons for having a map - topo excellent for fire control.

Presentation

1. Kinds of Maps
    - A. Road
    - B. Topo
    - C. Standard
    - D. Charts
    - E. Relief
2. Sizes
3. Topo
    - A. Features
        1. Elevations
        2. Canyons
        3. Rivers
        4. Ridges
        5. Roads and trials
        6. Creek beds
        7. Railroads
        8. Telephone Lines
        9. Boundaries
        10. Mines
4. Why use
    - A. Locate fire
    - B. Construct fire lines
    - C. Locate mine shafts

Presentation (cont.)

- D. Fire Camp Site
- E. Heliport Site
- F. Predict Fire Behavior

Application

Demonstration of use of topo map - Students located features - constructed fire lines on overlay with grease pencil.

Evaluation

Class located water source, fire camp site, heliport site, and worked fire problems.

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Air Tankers

Objective -- To acquaint the student with the role of aircraft as a weapon against uncontrolled fire.

Reference

Principles of fire management - forest fire control and use.

Materials Needed

Film - Air Tankers
Pictures
8mm projector
Slides
Slide projector

Introduction

Introduce guest speaker - Fire Captain C.D.F.

Presentation

1. Types of aircraft
    - A. PBY
        1. Capacity
        2. Speed
    - B. TBM
        1. Capacity
        2. Speed
2. Loading and mixing retardants
    - A. Kinds of retardants
    - B. Composition
    - C. Consistency
    - D. How loaded
        1. Pumps
        2. Tanks
        3. Crews
3. Drop Procedures
    - A. Altitude
    - B. Speed
    - C. Alarm System

Presentation (cont.)

D. Purpose (methods of attack)
  1. Head
  2. Flank
  3. Pretreat
  4. Safety
  5. Holding Action

4. Safety

A. Around aircraft
  1. Props
  2. Wings
  3. Tail

B. Loading
  1. Pumps
  2. Inhalation of powder

C. Drops

  1. Missiles
    a. Rocks
    b. Dirt
    c. Limbs
  2. Retardants
    a. Types

Application

Open - Question and answer session

Evaluation

Critique film and speaker's discussion

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Portable Extinguishers

Objective -- To acquaint the student with the types of portable fire extinguishers.

References -- Fire protection handbook.

Materials Needed

Back pump
Portable fire extinguishers
Hand out - installation of portable fire extinguishers NFPA 1970.

Introduction

Portable extinguishers work effectively on small fires - must know which type to use.

Presentation

1. Types - Classes
    - A. Water
        1. Badger (cabinet type)
    - B. Back Pump
        1. Operation
        2. Disassembly
        3. Change packing
        4. Storage
        5. Carrying
2. Chemical
    - A. Operation
    - B. Mounting
    - C. Inspection
    - D. Type of fire used on
3. Powder
    - A. Operation
    - B. Mounting
    - C. Inspection
    - D. Class of fire used on

Presentation (cont.)

4. Location

    A. Height from floor
        1. Maximum
        2. Minimum

    B. Assessability
        1. Visible
        2. Unobstructed

    C. Travel Distances
        1. Maximum
        2. Classes of structures

5. Classes of Fires

    A. Electric

    B. Flammable liquids

    C. Metal

    D. Combustible materials

Application

Demonstrate use of extinguishers on several fires.

Evaluation

Class will identify extinguishers and demonstrate how to use it.

LESSON PLAN (2 hours)

Course -- Fire Science

Lesson Title -- Automatic Sprinkler Systems

Objective -- To familiarize the student with sprinkler systems

References -- Fire Protection Handbook NFPA

Materials Needed

NFPA Handbook
Projector - screen
Slides
Sprinkler heads

Introduction

Value of sprinkler systems, history of sprinklers.

Presentation

1. Early sprinklers
2. Sprinkler heads
   - A. Upright
   - B. Pendant
   - C. Fuseable links
   - D. Spacing
   - E. Clamps
3. Types of systems
   - A. Wet type
     1. operation
     2. maintenance
   - B. Dry type
     1. operation
     2. maintenance
4. Advantages
   - A. Loss of life
   - B. Property damage
   - C. Insurance rates
   - D. Silent sentinel

Presentation (cont.)

5. Water system

    A. O.S.Y. Value
        1. Location
        2. Responsibil
        3. Testing

    B. Fire Department connections
        1. Inspection
        2. Hook up
        3. Location

    C. Flow Meter
        1. Types
        2. Purpose

6. Water Supply

    A. Reservoir

    B. Storage tank

    C. Hydrant

    D. Additional
        1. Pond
        2. Lake
        3. Pool

Application

Class visit of building with sprinkler system. Examine O.S.Y. valve, flow meter, fire department connections, entire system.

Evaluation

Class explain different systems.

LESSON PLAN (2 hours)

Course - Fire Science

Lesson Title -- Over view

Objective -- Review course, relate adeptness of American Indian to fire suppression and major forms used in fire services.

References

Materials Needed

Introduction to Employment
Career Firemen
Fire Report
Activity Card
Employment Application

Introduction

Indian tribes trained as hot shot crews - forms necessary for employment

Presentation

1. Preparations of forms
    A. Application
        1. health - criminal
    B. Activity
    C. Fire report
2. Heritage
    A. Esprit de corps
        1. Team work
    B. Outdoor activities
        1. Appeals to certain individuals
        2. Indian natural environment
    C. Hot Shot crews
        1. Certain tribes
        2. Southwest
        3. California
        4. Used to augment firefighting teams
        5. Pride in belonging
        6. Hold regular jobs
3. Pros and cons of Career in the Fire Services

Application

Evaluation -- Critique of course

PROPOSED FIELD TRIPS

9th week

Van Pelt Engineering Company. To observe fire engines being constructed.

10th week

Large city fire department. To observe special fire fighting equipment, aerial trucks, training tower, alarm systems.

11th week

Critique of all field trips and view slides and movies taken on previous trips.

EQUIPMENT NEEDED FOR FIRE SCIENCE
PORTION OF PROJECT

In addition to existing equipment which we have at the campus fire department:

1. Personal

   Hard Hats - $4.50 Pacific Welding Supply

   Gloves - $2.59 - Sears

   Boots - $18.97 - Wards

   Goggles - $2.50 - Pacific Welding Supply

   Coveralls - $6.79 - Wards

   Bump Hat - $2.45 - Pacific Welding Supply

2. Classroom Supplies

   Binders, pencils, pens

   Plastic overlay

   Maps

   Storage facilities (lockers)

This report on the Heavy Equipment Maintenance portion of the Indian Vocational Education Project falls into two areas: the objectives of the course and the materials used to meet objectives, and evaluation of the course with recommendations for future programs.

The objective of the course was to present to the student enough information to enable him to select or reject the field as a course of study. This was accomplished in covering all phases of heavy equipment as a career. Emphasis was placed on job opportunities, qualifications, challenges and rewards. The students were exposed to lectures, films, slides, handouts and field trips.

Field trips were made to a local air field where the students inspected aircraft and each was taken on a short flight. Trips were also made to Holt Heavy Equipment Company shops and the Heavy Equipment Repair Section of Sharpe Army Depot. The latter was a great success as the students were exposed to the total inspection and rebuilding of the D-7E tractor.

This kind of overview has great potential and could be applied to other career fields with success. Perhaps this should be a mandatory requirement to all courses as there are many student dropouts who did not understand the scope or ramification of a career field upon enrollment.

HEAVY EQUIPMENT MECHANIC

I. Entrance Requirements

  A. Pass the standard industrial physical examination.

  B. Age not less than 17 or over 28 years of age.

  C. Pass the approved test in mechanical aptitude.

  D. A minimum scholastic level of the eighth grade.

II. Work Description

  A. Service and preventive maintenance

    1. Inspect equipment

    2. Lubricate equipment

    3. Fill fuel and water tanks

    4. Check fanbelts and hoses

    5. Check battery and cables

    6. Check tires or tracks

    7. Check safety equipment

    8. Maintain equipment service records

  B. Field Maintenance

    1. Remove and replace fuel filters

    2. Change oil and filters

    3. Clean and replace air filters

    4. Replace hoses and belts as required

    5. Make necessary adjustments to clutches, brakes, engines and power attachments as required

    6. Ensure the equipment is in the proper mechanical condition to perform the work for which it was designed

C. HEAVY EQUIPMENT MAINTENANCE

Course Outlines

Lesson Plans

C. Emergency Repair

(There is no overall description for this area. In general it is trouble shooting and the replacement of broken parts that do not require the equipment to be evacuated to the shop for repair.) A few examples will be cited.

1. Equipment fails to function properly
2. Equipment stops and fails to start again
3. Stopped up or broken lines
4. Flat tires, thrown tracks
5. Replacement of broken cables
6. Welding within the limits of field maintenance

III. Working Conditions

A. Field maintenance and emergency repairs are done on the work site under every kind of weather and hardship. Rain, snow, mud, dust, heat and cold, day and night.

B. Separation from family

C. Isolated areas

D. Barracks living

E. Irregular meals

IV. Performance Requirements

A. Conduct

1. Mannerisms
2. Social behavior
3. Professional workmanship
4. Honesty
5. Knowing and abiding by rules and regulations
6. Cooperation
7. Personal and company safety

B. Job Skills

1. Ability to use hand and power tools
2. Ability to read and understand service and maintenance manuals
3. Ability to service and inspect equipment
4. Ability to use servicing equipment
5. Ability to rig chain hoist
6. Ability to build "A" frame
7. Understanding of the use of pontoons
8. Ability to use jacks - block and bracing
9. Ability start and move equipment
10. Ability to use safety equipment
11. Ability to properly use test equipment
12. Ability to use measuring equipment
13. Ability to perform under extreme conditions
14. Ability to work at night and under poor lighting conditions
15. Ability to estimate extent of repairs required and give a time requirement
16. Ability to bypass systems to keep equipment going under emergency conditions
17. Ability to weld and use burning equipment

C. Job Understanding

1. A good basic understanding of the function, construction and limits of construction of heavy equipment
2. Necessary understanding of all job skills as listed
3. The skill and pride in his work to do the assigned task fast and well

D. Job Relations

1. The will and ability to assume responsibilities
2. Develop the proper attitudes and will to assure good company relations
3. Honest and proper conduct at all times

I.V.E.P. HEAVY EQUIPMENT MAINTENANCE

COURSE OBJECTIVE

1. To expose the student to a specific course in Heavy Equipment to enable him to select or reject this field.
2. To teach them enough that it would and could have an impact on his future life if he did reject or drop out of the program. The time spent would not be a loss to the students.

SECONDARY OBJECTIVE

1. To make the student aware of the opportunities around him and instill pride in his heritage.

MEASURABLE OBJECTIVES

1. To demonstrate the ability to use the correct tools to do the job.
2. What tools to use for sharpening.
3. Safety in handling tools.

First Week

Objective: Introduction of instructor and course material.

- I. Formal Introduction
    - A. Introduce instructor
        - 1. Background
        - 2. ~~Expect from~~ instructor in terms of instruction, personal help
- II. Introduction of material
    - A. Introduction to heavy equipment
        - 1. McCloud River Project
        - 2. Construction of Pitt River Bridge (P.G.&E. films)
    - B. Intention of course is an overview of Heavy Equipment field
        - 1. Enable student to decide if he would be responsive to these duties
        - 2. Not designed for detailed study of heavy equipment maintenance

First Week

Objective: Introduction to field maintenance.

- I. Field maintenance and emergency repair work as done on on-site work.
    - A. Weather conditions, rain, snow, dust,heat.
    - B. Safety showing of equipment and use of jacks.
        - 1. Emphasis on safety at all times.
- II. Safety Film: "The Color of Danger" (Towmotor Lift Trucks)
  (Holt Bros.)

Second Week

Objective: To familiarize the student with the tools of the industry and the use and care of tools.

I. Nomenclature of tools

  A. Tool Identification

    1. Hand tools (sockets)

    2. Open end and box wrenches by size

    3. Hammers, chisels, screwdrivers and punches

    4. Safety practices with chisels and screwdrivers

  B. Identification of Power Tools

    1. Impact wrenches (air)

    2. Grinder (air and electric)

    3. Impact rippers

    4. High speed grinders

    5. Safety practices

Second Week

Objective: Identification of Heavy Equipment (Industrial Field)

Films: United States Army Films:

  A. "Utilization of Crawler Tractors" (30 min.)

  B. Crane shovel unit detaching shovel front

  C. Crane shovel unit attaching back hoe

  D. Type of bulldozer used for air drops

  E. Discussion of films

Second Week

Objective: Continuation

Film: United States Army Film

I. "Engineer Road Graders" (20 min.)

  A. Road grader use. Use of equipment.

II. Field trip to Sonora

Third Week

Objective: To develop the skills necessary to minimize danger of load shifting and field type rigging.

I. Basic Principles

   A. Know how to lift without injury to self or others

   B. Identify the parts of ladders

   C. Rig a field type "A " frame to repair heavy equipment with chain hoist

   D. Build a proper foundation with blocks and supports to lift ten (10) tons (use of hydraulic jacks).

   E. The student should have the ability to apply the knowledge of this equipment to home or field situations

II. Hydraulics

   A. Pascal's theory

   B. Liquid and Weights

   C. Hydrostatic hydrodynamics

   D. Film: "Fluid Power on our Highways Today"

   E. Film: "Basic Principles of Hydraulics"

III. The student should have the basic knowledge and the ability to apply this to the family car or truck. (Hydraulic projects and/or irrigation projects)

Third Week

Objective: Continuation of hydraulics from 4/28. Practical application of principles and theories learned

Demonstration: This was a practical application and review of 4/22, 4/28 and 4/29

Third Week

Field Trip to Holt Bros., Caterpillar, Stockton

I feel that this field trip was very successful, it allowed the students to come into direct contact with heavy equipment as they would find on a large scale. This trip took approximately 6 hours.

Fourth Week

Objective: Lubricant and fuels. Proper use of oils and greases

I. Film: "Oils" (Standard Oil Film)

II. Fuels

  A. Identification by sight, smell and taste

    1. Diesel

    2. Gas

    3. Paint thinners

    4. Solvent

III. Greases and Lubricants

  A. Can Codes

  B. Taste

  C. Viscosity

  D. Labels

  E. Smell

IV. Safety practices in storing and handling of fuels

  A. Film: "Safety in Handling Flammable Materials" (United States Army Film)

V. Practical Application

  A. Students were given different oils and greases to identify

  B. Each student must reach an 80% proficiency in this area

Fourth Week

Objective: To screen the students for driver's licenses and driving ability

I. Familiarization with Department of Motor Vehicles regulations

  A. Vehicle registration

  B. Written test

  C. Physical demonstration of ability

  D. Each student was required to demonstrate his ability to drive and maintain a vehicle up to and including 3/4 ton trucks.

Fifth Week

Objective: To familiarize the student with the operation and function of internal combustion engines.

I. Film: "How Power is Generated and Transferred into Useable Force" (United States Army Film)

   A. The fuel flow from tank to cylinder

   B. How spark plugs are fired

   C. What happens in the cylinder after ignition

   D. The necessity for cooling engines

   E. The reason for lubricants

Fifth Week

Field Trip:

A field trip was conducted to a local air field where the students were familiarized with the types of aircraft used in the heavy equipment and fire sciences. They were allowed to examine these vehicles, operate the controls and each student was taken on a short familiarization flight.

Fifth Week

Objective: To familiarize the student with the operation and function of the diesel engine

I. Film: "Diesel and Industry Today" (Caterpillar film)

II. Film: "Invention of the Diesel Engine" (Caterpillar film)

   A. How the diesel differs from the gas engine

   B. How are diesels most commonly used

III. The principles of the diesel

   A. Starting procedures

   B. Fuel

   C. Mechanics (gears, piston, cams, etc.)

   D. Principles of fuel injection

   E. Super-charged and turbo-charged engines

   F. The 2 and 4 cycle engine

IV. Trouble shooting on heavy equipment

   A. Engine fails to start

   B. Failure of fuels

   C. Mechanical breakdowns (example: water in cylinder with oil would denote head gaskets out or cracked block)

   D. On a running tractor these problems were simulated and students were required to diagnose the problems.

Sixth Week

Objective: Electricity

Film: "What is Electricity" (P.G.&E. film.) (Willard Film)
(How electricity flows from battery to generator to lights and back to battery)

I. Circuits

  A. Use of wire diagrams

  B. Use of color coding

  C. Wire splices

  D. Code requirements

II. Practical exercises

  A. Students were required to make an approved wire splice

  B. Trace circuit flow through wiring diagram (U.S. Army M52 tractor.)

III. This knowledge is sufficient to allow the student to make basic tests for continuity in his home, automobile and industry.

Seventh Week

Objective: Service manuals and work orders. To familizarize the student with required written work orders and other printed data pertaining to his assignment

I. The ability to use technical manuals

II. Itemization by placards

III. Use of standard parts manuals

IV. Completion of lubrication orders

V. Completion of preventive maintenance schedules

Conclusion:

The students were required to show their proficiency in this area by an explanation of maintenance as taken from the F.O.S. service manual.

Seventh Week Continuation

I. U.S. Army P.M.

A. Scoop type loaders and air compressors

B. Each student was required to perform a daily and 100 hour service on a single piece of equipment

Eighth Week

Objective: To familiarize the students with instruments and measuring equipment found in industry

I. Use of micrometers

   A. Steel tapes

   B. Pressure devices

   C. Electronics test equipment

II. Students required to demonstrate the ability to read micrometer. Each student was given one specific problem and 80% proficiency was required.

   A. The student was also required to show his proficiency in one other test device

Eighth Week

CANCELLED: Due to instructor's absence

Ninth Week

Field Trip: Sharpe Army Depot

Students were conducted on a tour of the military heavy equipment repair facilities. (8 hours)

Ninth Week

Class discussion of subjects covered during the course.

COURSE EVALUATION

This kind of overview has great potential. It could be applied to other career fields with success.

Perhaps this should be a mandatory requirement to all courses as there are many student dropouts because they did not understand the scope or ramifications of the career field upon enrollment. Although there were many problems, looking at the project in retrospect, it certainly warrants continuation. There were several problem areas that interfered with the success of the program.

One, after the course of instruction had been formulated and made into a presentable core of instruction, the late arrival and settling in of students at once required changes in the approach to the subject matter. This, of course, meant the instructor was shifting his course after it got started; which meant cutting short or leaving out entire portions previously intended for presentation.

Two, the ages and maturity of some of the students created a problem, as some of the students were past the age of recruitment and it became apparent to both the instructor and the students that they would, if they should choose this as a career field, in fact be training for a job that did not exist as far as they were concerned. Knowledge of this created a negative reaction among the students leading the younger and more impressionable students into an "I don't care" or lackadaisical attitude.

Three, student records were not complete. Many of the students had prior knowledge of the course; to give as an example, one was a certified welder, the second had attended aviation mechanics courses, and most of them had a knowledge of the equipment through experience. This is especially true in the older students causing a change in the approach to the subject matter. And as stated before, poor attendance is always a negative factor. It is very demoralizing to an instructor who has prepared a lesson, demonstration or field trip to have only a few students attend.

Four, lack of protective clothing and adequate equipment caused changes in the objectives because it was not practical to ask the student to perform hazardous or dirty work in his street clothes. Safety shoes, coveralls, gloves, bump hats and safety glasses should be available prior to instruction time. Two field trips were required to be cancelled because the students did not have liability insurance. It is unreasonable to assume that contractors will assume this liability on work sites where the possibility of injury is always present.

Five, there were personal and financial problems on the part of the student which affected the learning process. Drinking, automobile breakdown and overly emphasized family problems contributed greatly to tardiness and absenteeism.

D. OBJECTIVES
CONTENT
ACTIVITIES
EVALUATION

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
1. To identify the conditions under which work is done in each of the three vocational areas.	FS - To expose the students to conditions that they would experience in fire fighting.	Have students construct a fire line on rough terrian simulating real fire fighting conditions.	Inspect for its ability to hold. Inspect to see if it is in designated locations.
2. To experience these conditions for each of the three vocational areas.	Identify those conditions 24 hour alert. Long hours with out food or sleep. Heat, smoke, dust, poison oak, snakes. Travel long distances to fire ground on truck.	Team will feel out and mop up after containment. Clean, repair, and store tools upon return to station.	Film design for disaster. Get students reactions by oral discussion.
3. To identify the personal preferences of physical factors which will affect occupational choice.	Identify entrance requirements into field.	FT - Conduct: Lectures, guest lectures, discussions and field trips, including practical exercises to expose students to the "hands on" feel, knowledge and awareness of forestry technicians tasks, skills responsibilities and requirements.	FT - Quiz students on their basic understanding of a career in forestry . Appitude tests.
4. To apply these factors in the choice of a training field.	HE - Field Maintenance and Emergency repair have no restrictions. It is done on the work site in rain, snow, mud, dust, heat or cold. Time is money to contractors and mechanics are expected to be rough and tough enough to stand more abuse than the machines they work on.	Orientation, motion picture films and slides will be shown describing the nature of work in forestry activities.	Measure indicators of career choice in forestry: a. Student enthusiasm in class work. b. Degree of technical skills acquired. c. Number of summer job applications completed. d. Number of job offers made and accepted. e. Individual students verbal and written expression of interests in pursuing further forestry techniques training and forestry work.
	It requires a strong back and a will to work. The rewards are personal satisfaction in knowing that without your skills few projects would ever be completed and the financial rewards and security are high for a good mechanic.	Summer forestry job applications will be completed. Employers will be invited on campus to conduct student interviews.	
	FT - Introduction to forest technology. Description of functional areas of work,		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
	FT - (Continued) job descriptions, employment opportunities and employer agencies and organizations. Description of forestry aid and technician job entrance requirements. Factors affecting a career choice in forestry technology including outdoor working conditions, salary, seasonal nature of work, personal motivation, drive and commitment.		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
5. To familiarize students with the types of tasks done in each of the vocational areas: a. Operate equipment b. Adjust, maintain, repair, and clean equipment. c. Perform specific technical skills d. Work with people e. Maintain written and oral communications	FS - Develop ability to follow orders and work as a team. Identify materials to clean equipment and maintain station. How to wash and polish truck and brass. How to wash and roll hose. How to maintain brass couplings. To expose students to actual fire. See the fire Smell it Feel it React to it	FS - Each student will be given a position on a team. Students will wash and polish engine, brass, fittings, wash and roll hose. Will pratice coupling hose upon given commands. Hook to hydrant maintain water stream. Field trip to conservation center. Fire training school Students will observe engine responding to fire. Hose lay to fire and fire extinguished	Upon command will assume proper position. Inspect completed work, for cleanliness and accuracy. Given written evaluation on maintaining hose and couplings. Oral discussion on students feelings about fire and personal exposure to dangers which could be encountered.
6. To expose students to the actual work situation in the three vocational areas.	HE - This will be accomplished best by visits to sites where the sight and sounds are real. One or two days exposure to the real thing should convince the undecided student one way or the other. As in most fields a mechanic who does not like his work is of no value whatsoever.		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
7. To demonstrate proficiency in the use of hand tools: a. Back pump b. Pulaski c. McCloud d. Brush hook e. Axe f. Shovel g. Cross cut saw h. California tool	FS - General review of types of hand tools, their use and care. Administer diagnostic skill test to determine students present level of skill and understanding. Provide basic information and skill training for those students who do not meet the performance standards identified as acceptable in the pre-test.	FS - Demonstration: Back Pump a. Use of Back Pump b. Field strip c. Change packing d. Change nozzle e. Care of strips Pulaski a. How to use the Pulaski b. Safety with tool McCloud a. Make scratch line with McCloud b. How to sharpen cutting edge	Each student will use tool. Field strip and repack. Demonstrate proficiency with tool. Each student will use all the hand tools in a mock forest fire situation. Students must know how to care for tool and sharpen. Each student will identify and explain use of each tool. How it is carried and stored.
8. To demonstrate the ability to select the correct tool to do the job to be done. To demonstrate safe use of tool.	Present information on the specialized hand tools in each vocational area.	Brush Hook Demonstrate how to use a. Safety in using tool b. How to sharpen tool Axe	FT - Each student will be exposed to the "real world" tools, methods and applications in the field.
9. To demonstrate the ability to maintain and store hand tools in the correct fashion according to the requirements of the shop. How tools are stored, where they are stored.	Test for proficiency. Require student to get tool and return to proper place. FT - Due to the comprehensive list of hand tools and specialized equipment, instructional emphasis will be placed on tool orientation, familiarization and demonstration of uses and applications. Proficiency will be emphasized in subsequent instruction.	Demonstrate use a. Cut fire line b. How to carry tool c. How to sharpen tool d. Safety with tool Shovel What is it used for a. Throw dirt on fire b. Cut fire line c. Cutting brush d. Sharpen tool Cross Cut Saw a. What it is used for b. Care of tool c. Falling snags FT - Demonstration and introductory practical exercises: (Numerous field trips to technical operations)	Practical exercises will follow the demonstrations to give the student the "hands on" feel of the various tools and equipment and apply the tools to specific functional tasks under close supervision. Students will identify and explain the types of tools for the various functional tasks, be familiar with application methods and safety procedures. Students will identify general knowledge of tool maintenance and storage.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
		FT - (Continued) Reforestation a. Tree planting tools b. Planting methods (1) Seedlings (2) Seeds Timber Stand Improvement - tools and methods a. Thinning and release b. Pruning Christmas Tree Culture a. Planting b. Pruning for form and quality (Tree surgery) Ornamental and orchard tree culture a. Shaping for form, health, vigor and fruit production b. Pruning methods and techniques Logging Skills and practices a. Application of hand tools in felling, limbing and bucking b. Skidding, loading and log hauling Ranch and range management tools, skills and methods a. Fence building, etc. Recreation management tools, equipment and methods a. Care, cleaning and maintenance of recreation site facilities (campgrounds) b. Sanitation facilities c. Water supply	

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
		HE - Sort hand tool illustrations by type. Give practice in matching thread on nuts and bolts by type - SAE, USS, Pipe thread. Choose the proper nut from an assortment of nuts and bolts that will fit a bolt that has been selected by the instructor.	Can select proper tool on command 100%. Match proper tool to task to be accomplished. Match proper types of threads by matching 100%.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
10. To demonstrate proficiency in the use of power tools: a. Grinders b. Impact wrenches c. Lawn mower d. Power drill e. Sander 1. Type of paper 2. Types of sanders Belt - Rotorary - Disc.	FS - Provide information on use of power tools. Make up hand out on each tool. With safety rules included.	FS - Sharpen tool with Bench Grinder Lawn Mower a. Mix fuel b. Start and adjust machine c. Remove blade and sharpen and replace Drill a. Select right size drill for job b. Center punch and clamp material Sander a. Change paper in machine b. Demonstrate use of sander c. Sand a piece of wood	Each student will demonstrate how to use the tools safely and return to current location. Student will mix fuel and demonstrate operation of each tool. NE - Each student will demonstrate his ability to use these tools properly and safely.
11. To demonstrate the ability to select the correct tool to do the job to be done. What tool to use for sharpening. How to use lawn mower, clean, adjust, mix fuel. How to choose paper for sander.		NE - The student will learn to start and stop power (shop grinders), the proper way to grind steel and dress a grind stone. The student will learn the types of Impact wrenches, how and where they may be used and how to service them.	

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
12. To develop the skills necessary to make minor repairs in power tools: a. Mowers b. Drills c. Sanders	FS - How to remove, clean and gap spark plugs How to maintain cords and plugs Provide information on electric shock. Flying missiles from mower.	FS - Student will remove, clean gap and replace spark plug. Make minor adjustments on carburetor.	Given the following tools student will select proper ones to change spark plug on mower, remove blade, change cord on sander and sharpen drill bit. 1. 3/8 x 13/16 deep socket 2. 3/8 ratchet handle 3. 8" phillips screwdriver 4. 12" crescent wrench 5. 6" flat screwdriver 6. Chuck wrench 7. ¼" allen wrench 8. 3/4" combination wrench 9. 10" adjustable wrench 10. 3/8 speed handle
13. To develop the skills necessary to maintain power tools in good working order.	Preventive maintenance procedure on power tools. Check off list what tools to use to perform maintenance. HE - There is no requirement to repair the tools in this field only basic servicing is required (if these tools fail to function, they are returned to manufacturer for repair).		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
14. To develop the manual skills necessary to operate a chain saw.	FS - Provide a handout with nomenclature and instructions on the chain saw.	FS - Student will mix fuel, start engine, make cut in log with saw. Top cut Bottom cut	Given Gasoline Oil Student will mix in exact proportions, fill saw - start and stop engine.
15. To develop the practices which will allow for saf use of the chain saw.	List the precautions that must be taken in use of saw and in falling snag or tree.	Instructor will demonstrate changing the chain, sharpening the chain.	Student Will adjust chain tension. Will select proper oil for chain oiler.
16. To develop the knowledge and skill necessary to fuel the chain saw.	Identify type and amount of fuel and oil mixture. How it is to be mixed.		Remove, clean and replace air cleaner.
17. How to carry the saw.	Instruct student in starting saw. How to take care of chain and bar. Adjust chain tension. Clean machine. How to carry How to store Avoid obstructions - Rocks		Written test, Safety with th chain saw.
18. How to store saw and fuel.			
19. How to adjust bar.			
20. Bar-Guard.			
21. Fill oil tank for chain oiler.			
22. Clean air filter.			

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
23. To apply knowledge of use and care of hand tools to programs in each of the three vocational areas. a. Hydrant wrench b. Spanner wrench c. Adjustable wrench d. Slip joint pliers e. Screwdriver f. Bolt cutters g. Fence cutters	FS - Handout with each tool described and pictured. Describe each tool and what it is used for. Have tools and give demonstration on each one. How the screwdriver and pliers are used in the home.	FS - Each student will demonstrate the function of each tool. How to store and maintain each tool. Screw two pieces of 1 x 4 together.	Given each of the tools student will tell what it is, what it is used for and how it is used.
24. To apply knowledge and care of hand tools to one home, college, or community problem.	ME - The proper use and care of tools is very necessary. The student must realize and put into practice the proper use of hammers, chisels, screwdrivers, punches, wrenches, etc. Example: You do not pound on screwdrivers with a hammer or put a pipe extender over the end of wrenches for more power. The right and wrong way to use tools must be demonstrated. The student must be taught to take pride in his tools, as the condition of his tools are an indication of his skill as a mechanic. Machinery may be broken or damaged by the use of improper tools. Expensive tools made unserviceable and physical injury may result.		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
	HE - (Continued) This area is basic but cannot be overemphasized to the student mechanic.		
25. To familiarize students with the types of heavy power driven equipment which will be encountered in the three fields.	FS - To identify the different kinds and types of fire engines used in the fire services.	FS - Field trip to a station that has all three types of equipment. Bulldozers - Trucks	Each student will be able to describe the different Fire trucks Bulldozer Aircraft
26. To develop an understanding of the basic function and capabilities of the types of equipment encountered.	Four wheel drive Rear wheel drive Function of each. What do they have in common.	Make up handout on aircraft capacities. Kinds of retardants and safety.	Field trip Student will know a diesel engine from gasoline engine by sight, smell, sound.
27. To identify the commonalities in the types of equipment.	Aircraft Identify different types used in field. Safety in air Types of bulldozer used Drops Safety around bulldozer	HE - Film 5-3728 Utilization of Crawler Tractor	HE - A general familiarization of equipment the student would probably find in the field.
28. To identify the difference in types of equipment including types of engines. 1. Fire trucks 2. Aircraft 3. Bulldozer	HE - Utilization of crawler tractor in construction work and cleaning and clean up: before, during and after maintenance. Road grader use, use and maintenance of equipment; construction and finishing of ditches.	Film 5-2457 Crane Shovel Unit - Detaching shovel front Film 5-2459 Crane Shovel Unit Attaching the backhoe Film 5-2460 Crane Shovel Unit Attaching Clamshell and Dragline Bucket Film 5-3566 Engineer Road Graders	

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
29. To develop the body mechanics necessary to move and transport heavy or bulky objects.	FS - Know how to lift objects without injury to self or others. Identify parts of ladder.	FS - Practice ladder erection on buildings. Practice loading and unloading ladders from trucks.	Given a ladder, student can identify parts. Unload - erect, lower, and reload ladder safely.
30. To develop the procedures necessary to utlizing equipment or bulky objects.	Develop a training package on how to properly carry ladders and erect, lower and reload on fire engine.	HE - Rig a field type A frame to remove parts from Heavy Equipment with a chain hoist.	
31. To develop the skills necessary to minimize the danger of load shifts during motion.		Build the proper foundation and blocks to support a 20 ton hydraulic jack.	
32. To apply skills to each of the vocational areas.			
33. To apply skills to one or more home or community problems.			
34. Replacing the foundation under a building by holding the building on blocks.			
35. Simple bridge repair with heavy timbers.			

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
36. To demonstrate an understanding of: a. Hydraulics b. Fire hydraulics c. Pumps d. Types e. Uses f. Friction loss g. Hose pressures	FS - The operation of hydraulic brakes, power, jacks, and rams. HE - The family car or truck has hydraulic brakes (unless it is older than a 1932 model pumps for water or irrigation.)	FS - Student will set up pump and draft water from source and maintain fire stream - at desired pressure. HE - Show Film - Basic Principles of Hydraulics. Film - Fluid Power on Our Highways Today.	Student will describe different pumps. How they operate. Name basic parts of pump. Know what to do if he loses prime. HE - The students will fill, bleed and adjust a hydraulic brake system (car or truck). Use a hydraulic jack.
37. To apply knowledge of the use of equipment with hydraulics in each of the three fields.			
38. To apply knowledge of use of hydraulics to one community or home problem.			

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
39. To identify the various types of fuels according to: a. Smell b. Simple tests c. Container labels d. Sight	FS - Develop instruction block on various types of fuels found in fire fighting. Effects of winds, terrain, moisture. How fire starts spreads - drafts climatic conditions, ways heat is transmitted.	FS - Demonstrate different fuel types of containers.	Given different kinds of fuel student will name the fuel by smell and sight, color of container. Student will know light fuel from heavy. How they burn, rate of fire spread. Ignition temperature of various fuels.
40. To develop the skills necessary to read operational manuals concerning fuels.		HE - The students will be given a subject in a service manual to study, then demonstrate on a model how it functions.	HE - Orally explain the function of the subject assigned. Sketch the same operation.
41. To demonstrate safe practices in: a. The mixing of fuels b. The handling of fuel c. The storage of fuel d. The use of fuels in the work area.			
42. To match fuel types with motor types.			
43. Forest fuel Types			
44. Other fuels: a. Paper b. Paint c. Wood d. Liquids			The student must recognize the difference between gasoline and diesel fuel and demonstrate by testing with samples by smell and taste.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
45. To develop the manual skills necessary to perform lubrication of machine parts.	FS - Identify grease Fitting Zert Button Alemite	FS - Perform job of selecting proper grease - filling. Grease gun. Performing lub job and maintain record.	Student should identify different fitting. Fill and use grease gun.
46. To develop the skills necessary to utilize lubrication tools.		HE - Demonstrate the various types of grease guns.	HE - Fill the grease guns and service a piece of equipment.
47. To complete the job record accurately.		Types of fittings and where they will be found. Explain how to read and follow a lubrication order.	Follow and fill in the required entries on a sample work order.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
48. To identify oils and greases by the following: a. Sight b. Smell c. Simple tests d. Can labels e. Touch	FS - Develop ability to identify different kinds of lubrication and oils. a. Transmission fluid b. Gear grease c. Water pump grease d. Chassis grease By feel, sight, smell.	FS - Perform preventive maintenance checks. Remove plug on transmission check oil level on automatic transmission.	Given different oils and greases, student will identify each one and explain application.
49. To demonstrate ability to interpret lubrication orders and manuals through the selection of the proper lubricant	HE - Standard Oil Film - Identification and Proper Use of Oils and Greases.	HE - Introduce subject with film. Provide practice in identification skills. a. Reading code on cans b. Taste c. Viscosity d. Labels e. Smells f. Color	HE - Demonstrate they can select proper materials with wood. Match codes with lubricants and lubrication orders.
50. To match the order or manual with the proper lubricant.			
51. To demonstrate safe practices in the handling and storage of lubricants.			

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
52. To identify types of accidents resulting from: a. Clothing b. Hair c. Jewelry d. Personal feeling	FS - To develop an understanding that hair and jewelry can be a hazard if not kept at a safe and standard limit. Hair is highly flamable and can cause serious burns.	FS - Practice putting on turn out clothing, getting on truck as soon as possible, fastening seat belt, goggles and hard hat. Time clock will be used to time activities.	FS - Students must be able to describe safety clothing. Must be able to put clothing on properly and quickly. Students must prove he can equip himself in adverse conditions. a. Darkness b. Smoke c. Excitement
53. To identify protective clothing and equipment available to overcome accidents.	Protective clothing must be worn while engaged in fire fighting. a. Hard hat b. Safety goggles c. Safety belts d. Gloves		
54. Apply these practices in each of the three vocational areas.			
55. Apply these to home and community practices.	Psychological effects to cutting hair being away from home and family. Close living, never knowing where and when the next fire will be. HE - Clothing - Loose fitting or fringed "Davey Crockett" type clothing will be picked up by moving belts or couplings - Results are broken arms and legs - amputations and death. Hair - Excessively long hair will be picked up the same as clothing. It is also an extreme fire hazard in the event of carburetor flash backs or near hot manifolds.		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
	HE - (Continued) Jewelry - No rings or beads may be worn on or near running equipment, and only wristwatches with breakaway bands may be worn. Results-broken fingers and hands, fingers cut or jerked off. Beads could jerk you, face first, into a turning fan or red hot manifold. Personal feelings - Heavy equipment can be very dangerous - Respect it in every way - Use every safety precaution when working on or around it. Protective clothing - Safety Shoes or Boots can save a lot of broken toes. Goggles or face masks to be used around grinders, chisels or where flying bits of steel may be present.		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
56. To demonstrate proficiency in operation of a moving vehicle.	FS - Have a good understanding of a storage battery, how energy is stored until it is needed.	FS - Student will check the battery with a hydrometer. Check for water content, filler caps and battery cables.	Have student demonstrate his proficiency in maintaining batteries.
57. To demonstrate safe practices according to the proficiency levels required.	A basic knowledge of charging principles.		
58. To learn safe practices in the following areas: a. Fuels b. Batteries c. Moving parts of motor.	How to check the water level in a battery. What kind of water to put into a battery. Safety.		
59. To demonstrate ability to qualify for the necessary license to operate heavy equipment.	HE - Screen students for California State Drivers Licenses. Students without licenses will have to comply with D.M.V. regulations - physical, written and demonstration, etc. The licenses for cars and light trucks are almost a must through 3/4 ton pick-ups.		
60. To apply these principles to a variety of heavy equipment.	This area will be well covered in the Safety Classes. (#59) This is beyond the scope of this program. It is anticipated they will have the opportunity to learn how to start and stop some of the heavy equipment. This will be done at work sites and field trips.		

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
	HE - (#59 Continued) Beyond this, we are getting into the field of operating engineers.		
61. To be able to identify the measurement tools to be used in each of the three vocational areas. 62. To develop measurement skills which can be applied in each of the three vocational areas. 63. To understand the relationship of the measurement tasks to overall scope of vocational area.	FS - Develop basic entrance requirements which are common to all three fields of the vocations. a. Reading b. Writing c. Mathematics d. Psychological e. Chronological f. Physical The requirements would be in close relation to all areas because of the nature of the three vocations. HE - Steel tapes are about all that is really necessary. The student should know what Micrometers and Calipers look like if they are sent to get them, but beyond that you are getting into advanced shop work.	FS - Expose the student to as much of the vocations as possible during initial contact. a. Guest speakers b. Field trips c. Training films d. Slides e. Demonstrations	Oral examination Written examination Demonstration Exposure to tools and equipment used in the three fields The final evaluation will be in how many choose one of the vocations after examination and how many complete the course.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
64. To identify types of communication equipment which will be used in the three fields. 65. To understand the way in which the various equipment functions. 66. To observe communications personnel at work. 67. To be exposed to the operation of the equipment on an applied basis	FS - Develop a handout on two-way radio communication. How to transmit, receive and relay transmittals. How to maintain equipment. a. Change batteries b. Change antenna c. Care and storage of equipment Observe dispatch in operation a. U.S.F.S. b. C.D.F. Instill in student, the necessity of using hand signals. Observe hoisting and winching operations. Using hand signals. HE - Telephone - Sound Power Telephone - Radio (of the type used by the Forest Service). How this equipment functions is not necessary. They should be able to use the various types of telephones and radios. This can be partly classroom labs and the field trips to the Army will also show the use of field communication equipment.	FS - Use two-way radio to transmit and receive commands Practice hand signals for hoisting and winching. Also increasing and decreasing pump pressure. Observe pumping operation using hand signals.	Student will explain operation of two-way radio. Student will change batteries and antenna. Demonstrate the use of the equipment. Student will learn hand signals used in the field.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
68. To demonstrate an understanding of the operation of an internal combustion engine.	HE - Fuel flow from tank to cylinder. How a spark plug is fired.	HE - Film - The Operating Principles of the Internal Combustion Engine. Film - How Power is Generated and Transferred Into Usable Force.	The student will be required to make simple repairs and solve problems on an engine that has been bugged. Example - The engine will start but does not run well. Check that all plug wires are in place. Perhaps a cracked spark plug,etc.
69. To apply knowledge of internal combustion engines to equipment in each of the three areas.	What happens in the cylinder after ignition. The necessity for a cooling system.		
70. To apply knowledge of internal combustion engines to ones home or community problem.			
71. The proper way to check any car or truck that will not start or run. a. Fuel System - Is there gas in the tank? Is there gas through the carburetor? b. Electrical - Is the key on? Check battery power through coil and points to plugs. c. Mechanical Problem			

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
72. To demonstrate an understanding of the internal expansion engine (diesel) 73. To apply knowledge of internal expansion engines to equipment in each of the three fields 74. To apply knowledge of internal expansion engines to one community or home problem. Probably none unless diesel generators are used for power (Electrical Plants).	HE - What is a diesel? How is it different from a gas engine? How are they most commonly used?	HE - Film - Invention of the Diesel Engine Film - Diesel in Industry Today On a running tractor, show how the fuel is induced under pressure rather than drawn in by vacuum on a gas engine.	Give a situation and the symptons of what is or is not happening. He should be able to give a logical sequence to check for trouble and be able to tell what system the trouble is in. 1. Starting 2. Fuel 3. Mechanical (broken gears, cam, pistons, etc. 4. Water in cylinders or oil (head gasket out or cracked block).

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
75. To develop an understanding of the principles of electricity.	HE - *Film* - What is Electricity-	HE - Make the approved types of wire splices.	Each project must function.
76. To develop the skills of conducting electricity from one source to another through: a. Use of wiring diagrams b. Use of color coding c. Making wire splices d. Code requirements	*Film* - How Electricity Flows from Battery Generator to Lights and Back to Battery.	Trace current flow through a wiring diagram by following a color code. Each student will construct a closed circuit wiring project on a building board which will contain a power source,at least one switch and one electric light.When this project is completed it must operate.	
77. To demonstrate the use of safe practices when working with electricity.			
78. To apply knowledge to each of the three vocational areas.			
79. To apply knowledge to one or more home or community problems. Simple wiring of home, barn, car or truck.			

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
80. To develop preventive maintenance skills through: a. Ability to use technical manuals b. Visual inspection techniques c. Practice 81. To demonstrate understanding of preventive maintenance techniques through proficiency testing. 82. To apply techniques to one piece of home equipment under supervision of the instructor. Evaluation test would apply.	HE - Service Manuals F.O.S. should be satisfactory. Sun or National Service Manuals for cars and trucks. Be sure the manuals that covers the evaluation equipment is correct and available	HE - On a usable engine, use the service manual to adjust timing, point setting and adjust carburetor. Show on damaged parts how lack of lubrication will cause metal to metal wear. Make visual inspection of equipment and find trouble parts.	With an engine not tuned and trouble spots placed by the instructor, the students will each find a problem and correct it until the unit is running properly. This will require the use of manuals, tools and test equipment.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
83. To learn skills of preventive maintenance. 84. To demonstrate ability to perform skills of preventive maintenance.	HE - F.O.S. Service Manuals GTA 5-11-5	HE - Film - 5-3379 P.M. on scoop type loader Film - 5-11-9 P.M. on Air Compressor Film - 5-2357 P.M. Start and stopping of D-8 Caterpillar.	From the service manuals, each student will perform on a piece of equipment the required daily and 100 hour service. This can be a truck, tractor or other equipment that is available.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
85. To demonstrate skill in the basic testing equipment. 86. To demonstrate ability to complete testing procedures. 87. To demonstrate ability to perform tests in a safe manner. 88. To apply test skills to equipment and materials in each of the three vocational areas. 89. To apply test skills to home or community problem. The use of a test light to locate shorts or blown fuses in auto or home electrical systems.		HE - At least one field trip (time permitting 3) will be conducted to the National Guard H.E. repair shops, Stockton, where students under close supervision will work on line equipment using test equipment tools and the skill they have been taught in this program.	A general discussion will be held with students and the journeyman mechanics with whom they have been working-going over the good and bad points of the days work.

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
90. To develop an understanding of power flow through gear trains through: a. Charts b. Models c. Objects	HE - How the power of an engine is transmitted through couplings and gears to driving wheels.	HE - On a model or small truck, follow the power transmission from the engine through the clutch and transmission to drive shaft and differential to rear driving wheels.	Make a rough drawing of the components location in the power delivery - train and name the parts.
91. To apply knowledge in each of the three fields if all fields are using cars and trucks.			
92. To apply knowledge to one problem in the community or the home. The repair of family car or truck.			

OBJECTIVE	CONTENT	ACTIVITIES	EVALUATION
	Film List Design For Disaster Sharp as a Razor Building the Fire Line Water on the Fire 35 m.m. Slides CJC Fire Dept Guest Speakers Two Reference Books Principles of Forest Fire Management C.D.F. Forest Fire Fighting Fundamentals C.D.F. Water - Vs. - Fire C.D.F. Introduction to the Fundamentals of Fire Behavior U.S.F.S. Forest Fire Control and Use Davis California Fire Training Program Block 3 Book 1 & 2		

AN EVALUATION OF THE CURRICULUM OFFERINGS
# of the
INDIAN PROJECT

The original curricular statement for the Indian Project, covering the vocational offerings of Fire Science, Forest Technology and Heavy Equipment set forth ninety-two (92) behavioral objectives to be covered during the 1970-71 Spring Quarter. Of these ninety-two (92) objectives, fifty-one (51) were considered to be core content for all three areas with the related in-depth or enrichment material to be handled individually within each area. Additionally, six (6) objectives were specifically related to Fire Science, eight (8) to Heavy Equipment and twenty-seven (27) were applicable to two areas but not necessarily the same two each time.

Following is a list of behavioral objectives as detailed above:

CORE OBJECTIVES

1. To identify the conditions under which work is done in each of the three vocational areas.
2. To experience these conditions for each of the three vocational areas.
3. To identify the personal preferences of physical factors which will affect occupational choice.
4. To apply these factors in the choice of a training field.
5. To familiarize students with the types of tasks done in each of the vocational areas:
   a. Operate equipment
   b. Adjust, maintain, repair and clean equipment
   c. Perform specific technical skills
   d. Work with people
   e. Maintain written and oral communications
6. To expose students to the actual work situation in the three vocational areas.
7. To demonstrate proficiency in the use of hand tools:
   a. Back pump
   b. Pulaski
   c. McCloud
   d. Brush hook
   e. Axe
   f. Shovel
   g. Cross Cut saw
   h. California tool

8. To demonstrate the ability to select the correct tool to do the job to be done. To demonstrate safe use of tool.

9. To demonstrate the ability to maintain and store hand tools in the correct fashion according to the requirements of the shop. How tools are stored, where they are stored.

23. To apply knowledge of use and care of hand tools to programs in each of the three vocational areas.
    a. Hydrant wrench
    b. Spanner wrench
    c. Adjustable wrench
    d. Slip joint pliers
    e. Screwdriver
    f. Bolt cutters
    g. Fence cutters

24. To apply knowledge and care of hand tools to one home, college, or community problem.

25. To familiarize students with the types of heavy power driven equipment which will be encountered in the three fields.

26. To develop an understanding of the basic function and capabilities of the types of equipment encountered.

29. To develop the body mechanics necessary to move and transport heavy or bulky objects.

30. To develop the procedures necessary to utilizing equipment or bulky objects.

31. To develop the skills necessary to minimize the danger of load shifts during motion.

32. To apply skills to each of the vocational areas.

33. To apply skills to one or more home or community problems.

34. Replacing the foundation under a building by holding the building on blocks.

35. Simple bridge repair with heavy timbers.

36. To demonstrate an understanding of:
    a. Hydraulics
    b. Fire hydraulics
    c. Pumps
    d. Types
    e. Uses
    f. Friction loss
    g. Hose pressures

37. To apply knowledge of the use of equipment with hydraulics in each of the three fields.

38. To apply knowledge of use of hydraulics to one's community or home problem.

52. To identify types of accidents resulting from:
    a. Clothing
    b. Hair
    c. Jewelry
    d. Personal feeling

53. To identify protective clothing and equipment available to overcome accidents.

54. Apply these practices in each of the three vocational areas.

55. Apply these to home and community practices.

61. To be able to identify the measurement tools to be used in each of the three vocational areas.

62. To develop measurement skills which can be applied in each of the three vocational areas.

63. To understand the relationship of the measurement tasks to overall scope of vocational area.

64. To identify types of communication equipment which will be used in the three fields.

65. To understand the way in which the various equipment functions.

66. To observe communications personnel at work.

67. To be exposed to the operation of the equipment on an applied basis.

68. To demonstrate an understanding of the operation of an internal combustion engine.

69. To apply knowledge of internal combustion engines to equipment in each of the three areas.

70. To apply knowledge of internal combustion engines to one's home or community problem.

71. The proper way to check any car or truck that will not start or run.
    a. Fuel System - Is there gas in the tank?
    Is there gas through the carburetor?
    b. Electrical - Is the key on?
    Check battery power through coil and points to plugs.
    c. Mechanical Problem

72. To demonstrate an understanding of the internal expansion engine (diesel)

73. To apply knowledge of internal expansion engines to equipment in each of the three fields.

74. To apply knowledge of internal expansion engines to one's community or home problem.

    Probably none unless diesel generators are used for power (Electrical Plants).

75. To develop an understanding of the principles of electricity.

76. To develop the skills of conducting electricity from one source to another through:
    a. Use of wiring diagrams
    b. Use of color coding
    c. Making wire splices
    d. Code requirements

77. To demonstrate the use of safe practices when working with electricity.

78. To apply knowledge to each of the three vocational areas.

79. To apply knowledge to one or more home or community problems.

    Simple wiring of home, barn, car or truck.

85. To demonstrate skill in the basic testing equipment.

86. To demonstrate ability to complete testing procedures.

87. To demonstrate ability to perform tests in a safe manner.

88. To apply test skills to equipment and materials in each of the three vocational areas.

89. To apply test skills to home or community problems. The use of a test light to locate shorts or blown fuses in auto or home electrical systems.

OBJECTIVES RELATED TO TWO AREAS - FIRE SCIENCE AND HEAVY EQUIPMENT

10. To demonstrate proficiency in the use of power tools:
    a. Grinders
    b. Impact wrenches
    c. Lawn mower
    d. Power drill
    e. Sander
        1. Type of paper
        2. Types of sander
           Belt-rotary-disc

11. To demonstrate the ability to select the correct tool to do the job to be done. What tool to use for sharpening. How to use lawn mower, clean, adjust, mix fuel. How to choose paper for sander.

27. To identify the commonalities in the types of equipment.

28. To identify the difference in types of equipment including types of engines.
    1. Fire trucks
    2. Aircraft
    3. Bulldozer

39. To identify the various types of fuels according to:
    a. Smell
    b. Simple tests
    c. Container labels
    d. Sight

41. To demonstrate safe practices in:
    a. The mixing of fuels
    b. The handling of fuel
    c. The storage of fuel
    d. The use of fuels in the work area

42. To match fuel types with motor types.

45. To develop the manual skills necessary to perform lubrication of machine parts.

46. To develop the skills necessary to utilize lubrication tools.

47. To complete the job record accurately.

48. To identify oils and greases by the following:
    a. Sight
    b. Smell
    c. Simple tests
    d. Can labels
    e. Touch

49. To demonstrate ability to interpret lubrication orders and manuals through the selection of the proper lubricant.

50. To match the order or manual with the proper lubricant.

51. To demonstrate safe practices in the handling and storage of lubricants.

56. To demonstrate proficiency in operation of a moving vehicle.

57. To demonstrate safe practices according to the proficiency levels required.

58. To learn safe practices in the following areas:
    a. Fuels
    b. Batteries
    c. Moving parts of motor

60. To apply these principles to a variety of heavy equipment.

OBJECTIVES RELATED TO TWO AREAS - FIRE SCIENCE AND FOREST TECHNOLOGY

14. To develop the manual skills necessary to operate a chain saw

15. To develop the practices which will allow for safe use of the chain saw

16. To develop the knowledge and skill necessary to fuel the chain saw.

17. How to carry the saw

18. How to store saw and fuel

19. How to adjust bar

20. Bar-Guard

21. Fill oil tank for chain oiler

22. Clean air filter

FIRE SCIENCE OBJECTIVES

12. To develop the skills necessary to make minor repairs in power tools:
    a. Mowers
    b. Drills
    c. Sanders

13. To develop the skills necessary to maintain power tools in good working order.

40. To develop the skills necessary to read operational manuals concerning fuels.

43. Forest fuel
    Types

44. Other fuels:
    a. Paper
    b. Paint
    c. Wood
    d. Liquids

59. To demonstrate ability to qualify for the necessary license to operate heavy equipment.

HEAVY EQUIPMENT OBJECTIVES

80. To develop preventive maintenance skills through:
    a. Ability to use technical manuals
    b. Visual inspection techniques
    c. Practice

81. To demonstrate understanding of preventive maintenance techniques through proficiency testing

82. To apply techniques to one piece of home equipment under supervision of the instructor.
Evaluation test would apply.

83. To learn skills of preventive maintenance.

84. To demonstrate ability to perform skills of preventive maintenance.

90. To develop an understanding of power flow through gear trains through:
    a. Charts
    b. Models
    c. Objects

91. To apply knowledge in each of the three fields if all fields are using cars and trucks.

92. To apply knowledge to one problem in the community or home.

The repair of family car or truck.

In order to determine the strength and weaknesses of the program, an evaluation was made of the reports submitted by the instructors covering the quarter's offerings in each of the three areas. Hopefully, the following is an objective assessment of these reports.

A Core Objective is defined as skill, knowledge or information that is basic or applicable to each of the three vocational areas because of a commonality in the jobs to be done. Implicit of this, however, is that in-dept material will be given in each area due to the specialized function of the occupation.

In Fire Science twenty-five (25) of the core objectives apparently were not dealt with. Likewise, forty-eight (48) and thirty-four (34) objectives were not covered in Forest Technology and Heavy Equipment respectively.

The same observation was made when dealing with the specific area objectives as set forth by the individual instructors. In Fire Science, thirty-three (33) independent objectives were stated, thirteen (13) of which were not covered in the course content. Also, nineteen (19) out of twenty-six (26) objectives were apparently not dealt with in the Heavy Equipment area.

Four questions seemingly are self-evident. 1) Are these truly core objectives? 2) Were the proper priorities given to the total stated objectives? 3) Was there a lack of communication as to who should teach specific objectives based on individual instructor expertise? 4) Was the task too monumental for the time allocated?

Finally, in relation to behavioral objectives, two instructors covered the six (6) individual objectives from two (2) to twelve (12) times each.

In terms of the course content as it related to the behavioral objectives in the three occupational areas there is no way to determine what has or has not been achieved because the methods of evaluation were not submitted by the instructors.

A final note in justification of the course content as presented, in terms of the total effectiveness of the program, the following is presented as a resume of the feelings of the three instructors and the problems they perceived.

1. The late start in the actual instruction caused a change in the approach of the course content.
2. The age and maturity of the students caused a change or modification in objectives.
3. Poor student attendance was deemed a major negative factor as it relates to achievement.
4. Lack of proper clothing and adequate equipment caused a change or modification in some objectives.
5. Student's personal problems, alcohol, family, etc., adversely affected learning and is probably reflected in poor attendance.
6. Stringent screening for admission is necessary in order to assure that the student population has the innate ability and proper attitude in order to benefit from the learning process.

A further note is added by the administration staff to discuss the failure of a united team effort. Even though the team met weekly at a brown bag session, it was felt that a true team spirit with a united effort did not develop. The reasons for this were several.

Had student attendance been kept at an expected level, there would have been a greater willingness for staff to extend themselves and blend with others on the project. When few students would arrive for a class, it did little for the instructor's ego if he had planned an activity, scheduled a speaker, or arranged a field trip. These less than expected levels of student participation did little to promote interaction among staff, but served only as a reason for little discussion.

Another reason for lack of spirited interaction was that no effort was placed into the weekly sessions devoted to instructional technique. Discussions were devoted to general or student problems to be shared as informational items for the good of the order. These were none-the-less important but did little if anything to stimulate teacher technique and team morale.

The following pages contain a total numerical listing of the behavioral objectives that were to be used in the Indian Vocational Project. The listing includes the core objective, the objectives to be used in the specific areas as stated by the instructors, and a designation as to whether or not they were in fact incorporated into the program.

A LISTING OF BEHAVIORAL OBJECTIVES AND USAGE FOR THE THREE OCCUPATIONAL AREAS

* Core Objective - Applicable to all three areas
x Objective to be used in the course as stated by the instructor
# Course content used to achieve the stated objective
N.C. Course content not covered

OBJECTIVE		FIRE SCIENCE		FOREST TECHNOLOGY		HEAVY EQUIPMENT	
*	1	x	#	x	#(6)	x	#
*	2	x	#	x	NC	x	NC
*	3	x	#	x	#(7)	x	NC
*	4	x	#	x	NC	x	#
*	5	x	#	x	NC	x	NC
*	6	x	#	x	#(12)	x	#
*	7	x	#	x	NC	x	NC
*	8	x	#	x	NC	x	NC
*	9	x	#	x	NC	x	NC
	10	x	Previous student knowledge			x	
	11	x	NC			x	#
	12	x	#				
	13	x	NC				
	14	x	covered by another instructor	x	#		
	15	x		x	#(2)		
	16	x	"	x	#		
	17	x	"	x	#(2)		
	18	x	"	x	#		
	19	x	"	x	#		
	20	x	"	x	#		
	21	x	"	x	#		
	22	x	"	x	#		
*	23	x	#		NC	x	#
*	24	x	#		NC	x	#(2)
*	25	x	#		NC	x	#
*	26	x	#		NC	x	#
*	27	x	#			x	NC
	28	x	#			x	NC
*	29	x	#		NC	x	NC
*	30	x	NC		NC	x	NC
*	31	x	NC		NC	x	NC
*	32	x	NC		NC	x	NC
*	33	x	NC		NC	x	NC
*	34	x	NC		NC	x	NC
*	35	x	NC		NC	x	NC

OBJECTIVE		FIRE SCIENCE		FOREST TECHNOLOGY	HEAVY EQUIPMENT	
*	36	x	#	NC	x	NC
*	37	x	#	NC	x	NC
*	38	x	#	NC	x	NC
	39	x	#		x	NC
	40	x	#			
	41	x	#		x	NC
	42	x	#		x	NC
	43	x	#			
	44	x	#			
	45	x	NC		x	NC
	46	x	NC		x	NC
	47	x	NC		x	NC
	48	x	#		x	#
	49	x	NC		x	#
	50	x	NC		x	#
	51	x	NC		x	NC
*	52	x	#	NC	x	NC
*	53	x	#	NC	x	NC
*	54	x	#	NC	x	NC
*	55	x	#	NC	x	NC
	56	x	NC		x	NC
	57	x	NC		x	NC
	58	x	NC		x	NC
	59	x	NC			
	60	x	NC		x	NC
*	61	x	#	NC	x	NC
*	62	x	NC	NC		NC
*	63	x	NC	NC	x	#
*	64	x	#	NC	x	NC
*	65	x	#	NC		NC
*	66	x	#	NC	x	NC
*	67	x	#	NC	x	NC
*	68		NC	NC	x	#
*	69		NC	NC	x	#
*	70		NC	NC	x	#
*	71		NC	NC	x	#
*	72		NC	NC	x	#
*	73		NC	NC	x	#
*	74		NC	NC	x	deleted
*	75		NC	NC	x	#
*	76		NC	NC	x	#
*	77		NC	NC	x	NC

OBJECTIVE	FIRE SCIENCE	FOREST TECHNOLOGY	HEAVY EQUIPMENT	
* 78	NC	NC	x	NC
* 79	NC	NC	x	NC
80			x	NC
81			x	NC
82			x	NC
83			x	NC
84			x	NC
* 85	NC	NC	x	NC
* 86	NC	NC	x	NC
* 87	NC	NC	x	NC
* 88	NC	NC	x	NC
* 89	NC	NC	x	NC
90			x	NC
91			x	NC
92			x	NC

PART IV

A. PRE-VOCATIONAL CORE COURSES

Hospital Building Maintenance

INTRODUCTION

This unit is designed to expose the student to the occupation of Building and Plant Maintenance, to point out the allied fields of a maintenance position, and to motivate the student to pursue education for or employment in the field of Building and Plant Maintenance.

This course will provide a general knowledge of maintenance procedures and techniques.

An effort has been made to cover in this unit the basic steps and views toward an occupation which will bring fulfillment to you in the field of Building and Plant Maintenance.

Subject	Purpose	Teaching Pattern
Introduction	Let's get acquainted.	1. Teacher may introduce himself. 2. Student may introduce himself and give a resume of the reason he enrolled in the class. 3. Have class give their objectives.
The various and allied fields of building and plant maintenance	To acquaint the student with the various fields he may pursue in the maintenance occupation.	1. List various divisions of a maintenance occupation. 2. List allied occupations which may or may not be covered in this unit. Examples: a. glass - glazer b. electrician c. refrigeration d. gardener e. locksmith f. broiler maintenance g. security guards h. painter i. pest control j. plumber

Subject	Purpose	Teaching Pattern
		3. Special Activity: Have student list other divisions of maintenance employment; which one he may choose; why.
Let's visit a facility	To observe maintenance work in action.	1. Assign student to visit a plant, school, hospital, rest home or department store, etc. and observe first-hand maintenance procedures. 2. Give report on condition of facility visited. What improvement, if any, could be made in his estimation.

MEETING THE PUBLIC

Subject	Purpose	Teaching Pattern
Relation of the Maintenance Field to the Community	To impress the student that all types of employment affect himself and his community.	1. Class discussion: a. Student impression upon the public will do much to bring about better working conditions. b. Student relation to the public and employer will bring: (1) good wages (2) decent hours (3) fair treatment (4) insurance and retirement provisions (5) participation in church, sports and lodges of the community. 2. Special Activity: Have class give report on responsibility to the public in the field of maintenance.

Subject	Purpose	Teaching Pattern
Salesmanship	You can sell your plant or business to the public.	1. Instructor discussion: a. Importance of clean facilities b. Importance of cheerful surroundings c. Be aware of public needs d. Loyal to your company e. Feel your work is necessary 2. Have student list ways to sell his plant or place of business. 3. Have class make list of "do's" and "don'ts" of a maintenance employee.
	You can sell yourself.	1. General qualifications of a good employee: a. previous experience b. variety of abilities c. character and habits d. education e. intelligence f. self respect g. appearance h. individuality i. responsibility to get along

Subject	Purpose	Teaching Pattern
		j. health k. dependability l. morals m. confidential information n. friendliness o. generosity 2. Class Activity: a. Write self evaluation essay. b. Give true and false test on human relations.

PLANNING YOUR TIME

Subject	Purpose	Teaching Pattern
Planning your time	To show the need for a daily work schedule.	1. Discuss seven reasons for a work schedule: a. Reduces omissions b. reduces misunderstandings c. reduces overlapping d. provides a clean-cut basis for supervision of employees e. maintenance service is routine in nature f. designed to become a pattern for daily operations g. gives a sense of security. 2. Special Activity: a. Have class design a (daily) personnel work schedule.
Job time allotment (Daily)	To develop a working schedule by time allotment (Daily).	1. Developing a work schedule (Daily): a. list duties to be performed b. schedule work by time allotment

Subject	Purpose	Teaching Pattern
		c. work program: (1) grouping (2) routine jobs (3) job time requirements (4) work programs
Developing a work schedule	To develop a working schedule weekly, monthly and periodically.	1. Type of work to be covered: a. weekly b. monthly c. periodically d. emergency periods 2. Special Activity: Have class develop a working schedule on a weekly, monthly and periodical basis.

SAFETY AND SECURITY

Subject	Purpose	Teaching Pattern
Safety	To impress the student with good safety practices and attitudes.	1. Discuss various divisions of safety: a. heating equipment b. electric c. general safety d. ladder safety e. chemical safety f. words to watch for
Why Safety?	Why Safety? To be safety-minded can save your business money.	1. Sanitation a. cuts germs b. prevents illness 2. Safety a. cuts loss of time by accident b. cuts maintenance costs 3. Preventive Safety. 4. Special Activity: Show films on safety. Class discussion.
Security	To impress student with importance of security.	1. Discuss various divisions of security. a. keys and key care b. locking doors and windows

Subject	Purpose	Teaching Pattern
		c. Refuse to admit unauthorized persons. d. Precautions for guards and watchmen. e. Precautions against (1) burglaries (2) vandalism (3) illegal entries 2. Special Activity: a. Have class make up security schedule. b. Invite police department to discuss security.

Subject	Purpose	Teaching Pattern
Problems peculiar to a health facility	Disease prevention	
	1. The public in the hospital	Observe visiting hours. List poor procedures and violations of good health practices.
	2. Isolation	Describe the regulations and discuss why each rule exists. Describe how the maintenance here is different.
	3. General hospital room care	List regulations involving daily room care. List room care functions after a patient vacates the room.

LADDER SAFETY

Ladder accidents are usually caused by two things:

1. Use of unsafe ladders.
2. Unsafe use of safe ladders.

If three common-sense precautions are taken, practically all ladder accidents and injuries will be avoided:

1. Select the right ladder for the job.
2. Check the condition of the ladder.
3. Use the ladder safely.

Select the Right Ladder

First of all, select the right type of ladder for the job to be done:

1. Don't use a ladder that is too long or too short for the job.
2. Don't use two ladders spliced together.
3. Don't use a light household ladder for a heavy construction job.
4. Don't use metal ladders near electrical circuits or power lines.

Check the Condition of the Ladder

After selecting the right type of ladder, check it before using it:

1. Check it for cracked or split side rails.
2. Check it for missing or broken or otherwise defective steps (cleats, rungs, treads or U-shapes).
3. Check it for sharp edges and splinters on cleats and rungs and side rails.
4. Check it for general weakened condition.

If it is found to be unsafe, withdraw it from use and fix it at once if possible. If it cannot be fixed, destroy it immediately to make sure it will never be used again.

Use the Ladder Safely

You can select the right ladder for the job and check it before you use it, but it will still be dangerous unless you use it safely.

The most commonly used ladder is the portable straight ladder, and you should take every precaution in using it.

> Place the ladder with care. If the foot is too close to the wall, the ladder may fall backward when you use it. If it is placed too far from the wall, the ladder is more likely to slip.
>
> If it has no guard rail, don't work higher than the second or third step from the top.

Set the ladder at an angle of about 75° with the floor or ground. The horizontal distance from the wall to the foot of the ladder should never be more than 1/4 the length of the ladder.

Make sure the ladder is not placed on a loose object or on uneven footing.

To prevent slipping, equip the ladder with non-slip points or safety shoes, if practical. If not, secure the ladder firmly by lashing it with rope or by other means.

Don't lean a ladder against a movable object.

Don't lean a ladder against window sashes. Fasten a board securely across the top of the ladder to give a bearing on each side of the window.

Protect the man on the ladder. See that a helper stands guard in dangerous circumstances, as when a ladder is in front of a door.

If there is danger of a person or vehicle bumping into the ladder, either have a helper stand guard or rope off the space around the ladder.

One person at a time. The ordinary straight ladder is not built to support more than one person. Remember this.

Going up or down, always face the ladder and grasp the side rails or rungs with both hands.

Take one step at a time. Don't hurry!

Don't try to carry tools or material while going up or down a ladder. Put them in a sack that hangs from a strap over your shoulder or use a bucket and a rope to haul or lower them.

Remove any oil and grease from the soles of your shoes before using a ladder. This may save you from a fall.

Never work above the second rung from the top of a straight ladder.

Hold on with one hand when working from a ladder. Don't overreach, and don't push or pull if it will cause the ladder to move. If you are far away from something you have to reach, take time to move the ladder closer. You reach for an accident when you overreach.

Don't straddle the space between the ladder and other objects.

Don't work on a ladder in a high wind.

Try to use stepladders less than 10 feet long, if possible. Never use stepladders more than 20 feet long.

Don't stand on the top step unless the stepladder has a guard rail.

If it has no guard rail, don't work higher than the second or third step from the top.

Open the stepladder all the way and lock the spreader.

Don't use stepladders having rope or chain spreaders.

Don't use a stepladder as a straight ladder, (that is, by leaning the top against a wall or other support).

Don't use extension ladders to reach heights greater than 60 feet. Use scaffolds.

Fixed ladders should be placed so that there is a clearance of at least 24 inches on the climbing side, and they should be built out from the building at least 6 inches.

They should be fastened securely throughout their length.

California's General Industry Safety Orders state what is required of fixed ladders (and other types of ladders as well). The Construction Safety Orders give standards for ladders used in the construction and painting trades.

When a ladder is not in use, store it under cover, horizontally, with sufficient supports to prevent sagging. Don't let it lie on the ground, where it may suffer from excessive heat or dampness.

Home built straight ladders:

Wood for all ladders should be sound, straight-grained, and without large knots, checks or decay.

Side rails for ladders more than 12 feet long should be at least 1-5/8" X 3-5/8".

Cleats should be at least 25/32" x 2-5/8" with 3 nails on each side and with additional support from 25/32" x 1-5/8" x 9-3/8" long blocks nailed to each rail between the cleats.

Don't Paint Wooden Ladders:

For protection against weathering use shellac, varnish or linseed oil.

Never use paint, for paint may conceal defects that should be easily seen and corrected if accidents are to be prevented.

Carrying a Ladder

Be extra careful when carrying a ladder through aisles, doorways or around corners.

Keep the end ahead of you elevated high enough to clear a man's head.

Before turning around, make sure that the ends will clear all persons and objects.

READ AND UNDERSTAND THE LABEL - IT'S FOR YOUR PROTECTION

More and more chemicals are being used in industry. Hardly a day or a week goes by without new chemicals or combinations of chemicals appearing on the market.

These chemicals include pesticides which are used on the farm, in the home and in industry.

Some of these chemicals are hazardous in themselves, some are hazardous when mixed with others.

The hazards are often great enough to cause many serious injuries and even death.

For this reason California Safety Orders require containers of hazardous chemicals or mixtures to be properly labeled. If you understand what the label says, it may save you from injury or worse.

So read the label - it's for your protection. Be guided by what it says.

Remember These Words

If a chemical is injurious, California Safety Orders require the label on the container to include one of these words:

Caution!
Warning!
Danger!

When you see any of these three words on the label, you should stop, read and make sure you understand what the label says.

> The word "Caution!" means that there are hazards you should look out for.
>
> The word "Warning!" means more severe hazards to protect yourself from.
>
> The word "Danger!" means still more severe hazards to guard against.

But regardless which of these three words you see, it means this: read the label - it's for your protection.

Skull And Crossbones

When you see a skull and crossbones on a label, it means that even very small quantities of the chemical can seriously hurt you or even kill you. These chemicals poison you if you swallow them, breathe them or absorb them through your skin.

California Safety Orders require the skull and crossbones on labels of poisons.

CAUTION - KNOW YOUR CLEANERS

A peculiar accident reported by the National Safety Council involved two housewives in separate cases. Both were using an ordinary toilet bowl cleaner. Not satisfied with the way it was removing stain, each one added some household bleach and stirred with a brush. One died quickly -- the other spent a long time in the hospital.

A U.S. Navy medical newsletter tells about 20 people being overcome by gas or gases released from a cleaning mixture. Investigation revealed the mixture included a well-known liquid household cleaner, chlorine bleach, and ammonia.

What happened in the above cases was that a poisonous gas was liberated when the users decided to use a mixture of two or more common household cleaning agents. When the widely used household chlorine bleach (a sodium hypochlorite solution) is combined with an acid or acid-producing substance, such as a toilet bowl cleaner or vinegar, there is a sudden release of a quantity of chlorine gas. Likewise, when a chlorine bleach is mixed with ammonia, lye, or other alkaline substance, the action will liberate a highly irritating gas.

If the gas is inhaled, in either case, it can cause serious injury and possibly death. Accidents of this type have occurred not only in the kitchen and bathroom, but also in the cleaning and treating of the water in swimming pools.

Don't make the mistake of thinking that because certain household products are good and useful the combination of two or more of them will do a better job than one alone. Very often mixing them is useless and unnecessary, since combined they will not make the job of cleaning easier nor give better results; and sometimes combining them may be disastrous. Follow the safe rule -- use chemical cleaners as the manufacturers direct on the labels, and keep in mind some scouring powders now contain chlorine bleach.

It is best, anyway, not to use a hypochlorite (chlorine) bleach in toilet bowls, sinks, or bathtubs, or on electrical appliances, as it can in time injure, dull, or roughen a fine, smooth porcelain surface.

DON'T MIX scouring powder containing chlorine bleach or chlorine bleach with:

Toilet bowl cleaners
Ammonia
Lye
Rust remover
Vinegar
Oven cleaner
Any other cleaning agent

Breathing of gas from any of the above mixtures can be FATAL!

Words to Watch For

According to California Safety Orders, labels must clearly mention hazards so that anyone who uses hazardous material will be aware of them.

Some words or phrases that indicate hazards are:

"Flammable"
"Extremely flammable"
"Causes skin irritation"
"Toxic"
"Rapidly absorbed through skin"
"Vapor harmful"
"Harmful dust"

When you see the term "flammable", it means that the material can catch fire or explode if the temperature is above 20° Fahrenheit. Nearly all California temperatures are always above this.

It is important to keep flames or other sources of ignition away from flammable material.

When you see the term "extremely flammable", it means that the material will catch fire or explode very easily. It can catch fire and explode even at temperatures below 20° Fahrenheit.

Gasoline is a good example of something that is extremely flammable and we all know how dangerous it is to have a lighted match near it.

When you see a phrase like "causes skin irritation" or "avoid contact with skin", it means that the material may cause skin trouble of one sort or another, and that it may, in some cases, actually eat through and destroy your skin.

There is one thing you should remember. Anything that can damage your skin can much more easily damage your eyes, which are extremely delicate.

When you see the word "toxic", remember it means poisonous. A poison can make you violently ill or even kill you.

Some toxic materials will harm you if they touch your skin. Others will harm you if you inhale their dust or vapor. All will harm you if you swallow them.

When you see the phrase "causes burns", or "causes severe burns" or "causes severe irritation", it means that the chemicals, if they touch your skin, will cause a rash or even destroy the tissue.

Examples of chemicals that cause burns are sodium hydroxide (lye) and hydrochloric acid (muriatic acid).

Some chemicals are especially severe in their action. Hydrofluoric acid, for instance, will quickly eat its way through glass, so you can imagine what it would do to you if it touches your skin.

GENERAL UTILITY

Subject	Purpose	Teaching Pattern
Know your equipment	To acquaint the student with equipment and its uses.	1. What equipment do we need? a. vacuum cleaners (wet and dry) b. buffers c. automatic floor scrubbers d. various types of floor mops (wet and dry) e. Brushes f. tools 2. Special Activity: Have student demonstrate various pieces of equipment in classroom. Equipment uses and care
Know your chemicals	To know your chemicals and solutions.	1. Introduce student to the numerous chemicals and solutions used in maintenance procedures. a. detergents b. waxes c. abrasive powders d. P.H. scale

Subject	Purpose	Teaching Pattern
		2. Special Activity: a. Student may demonstrate various chemicals and solutions and how they react. b. Learn to mix solutions. c. Invite salesman to class. d. Show films if available.
Job Methods	To become acquainted with job procedures.	1. Introduce student to the various methods of work. a. dusting b. mopping technique (wet and dry) c. spot mopping d. rooms with movable and stationary furniture. e. stairway cleaning f. lavatory cleaning g. wall cleaning h. waxing i. scrubbing procedure j. furniture cleaning k. glass cleaning l. aluminum cleaning

Subject	Purpose	Teaching Pattern
		m. chalkboard cleaning n. gymnasium floor care 2. Special Activity: a. Show films on job procedures. b. Demonstrate methods in classroom with student participation.

GROUND MAINTENANCE

Subject	Purpose	Teaching Pattern
Ground Maintenance	The grounds are your showcase ... The instructor may be able to cover only a general area of ground maintenance as this is a field in itself.	1. Basic principles of landscaping a. location of the building b. grading c. size and location of play area, parking lots, etc. d. planning and planting.
	To introduce general view of ground maintenance.	1. Discuss total appearance: a. trees (planting & care) b. shrubs(planting & care) c. hedges(care of hedges) d. Vines (planting & care) e. lawns (planting & care) 2. Special Activity: Have qualified person as speaker.
	To introduce a ground maintenance program.	1. Good maintenance program: a. pruning b. mowing and trimming c. watering d. cleanliness of grounds e. spraying f. fertilizing

Subject	Purpose	Teaching Pattern
		2. Special Activity: Give test on ground maintenance. Show films if available.

SAFETY AND SECURITY

Safety is a most important factor and not only pertains to yourself but every person who steps on hospital property.

Be alert at all times and report things that are, or might be, a hazard.

The responsibility for safety lies in the combined efforts of all persons in the hospital. Since the custodian visits or works in more areas than any other person, he should be constantly alert to hazards. This also includes outside areas including walks, paths, etc.

The field safety covers many items including electric heating equipment, fire extinguishers, furniture, scaffoldings, ladders, etc.

Electric equipment must have three wire-grounded connections.

Heating Equipment

1. Check safety valves daily.
2. Locate all gas valves and be ready to shut them down if you should smell gas or if the heating systems are not functioning properly.
3. Never bypass a safety device.

Electric

1. Know the location of switches. Use them when needed.

General

Be alert to hazards at all times. Report all hazards to your head custodian or administrator at once.

Security means keeping the hospital and contents free from pilferage or damage.

Locks are serving their purpose only when proper control is maintained over keys.

The importance of keys cannot be overemphasized. When you are given a key or keys to the hospital it is a vote of confidence in you by your employer. Do not be careless with your keys or loan them to any persons. Remember, locks are of little use when keys are in the hands of unauthorized persons.

1. Check all doors which should be locked before going off duty.
2. Check all windows before locking any room.
3. Keep tools and equipment locked.
4. Notify the head custodian or administrator of all suspicious persons or acts.

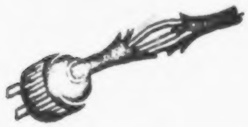
EQUIPMENT CARE

Subject	Purpose	Teaching Pattern
Equipment Care	The importance of equipment care.	1. Demonstrate the cleaning of equipment a. floor machines b. vacuum cleaners c. scrubbers d. rug shampoo machines e. wet and dry pick ups 2. Special Activity: Have class clean equipment.
	The care of small equipment.	1. Demonstrate the care of various small equipment items a. dust mops b. wet mops c. mop buckets d. floor brushes e. brushes f. buckets g. waste containers h. etc. 2. Special Activity: Give true and false test on all areas of Building and Plant Maintenance.

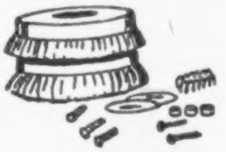
MAINTENANCE OF EQUIPMENT

The proper maintenance of a building should also include the care and maintenance of supplies and equipment. Every item of supply and equipment should have a special storage space. Labels on chemical containers should be maintained for safety and prevention of waste. Loose and damaged parts on equipment should be observed and prompt repairs made prior to storage. Following these rules can save much on replacements, lost time, accidents or breakdowns.

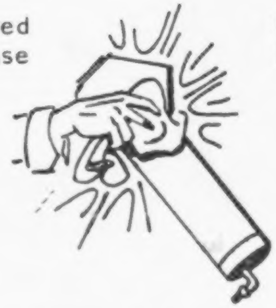
FLOOR MACHINE AND VACUUM CLEANER CARE



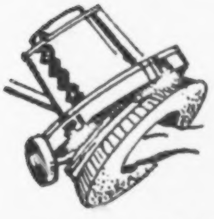
Check wiring for frayed insulation. Always use grounding plugs when furnished.



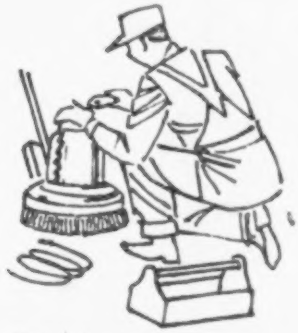
Keep inventory of repair parts, brushes and other accessories.



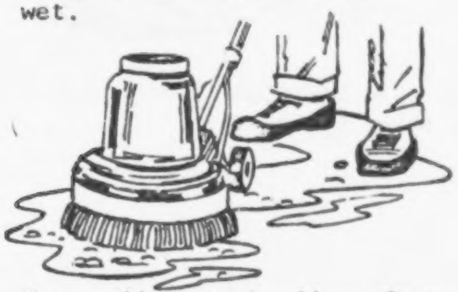
Keep tank clean, keep valve and lines in repair.



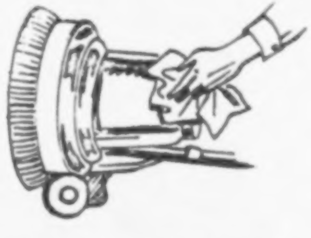
Place brushes or block on floor machine by hand - never start machine until brush lugs are engaged. When brushes are dirty, clean them by soaking brush part in cleaning solution and then rinsing. Always keep wood blocks out of solution and wipe dry when wet.



Don't tinker with the motor. Have experienced maintenance man check.



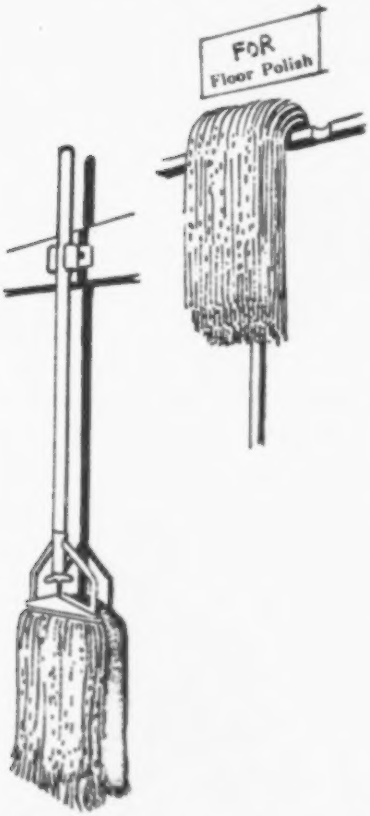
Wear rubbers and rubber gloves when scrubbing floor for safety and health protection.



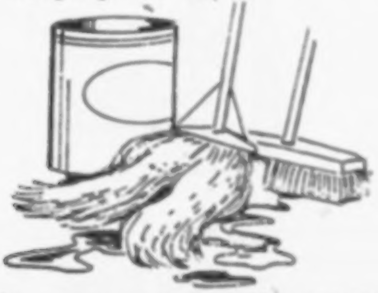
Rest floor machine on wheels when cleaning or storing. Wipe off floor machine and vacuum after each use, including electric cords, also inside parts as well as outside. Keep in repair as needed.

WET MOP CARE

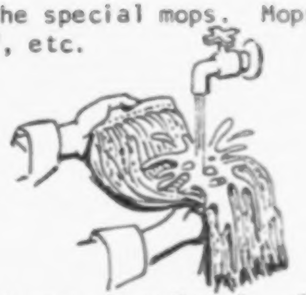
Special mops should be labeled. Never interchange the special mops. Mops may be marked "Cleaning Mop", "Rinse Mop", "Wax Mop", etc.



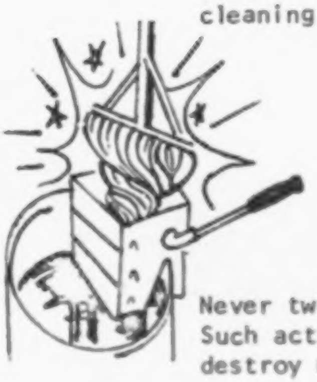
Cut off loose and uneven yarn strands. Always clean wet mops before hanging to dry. Keep yarn away from wall. Here are two suggested methods for hanging wet mops.



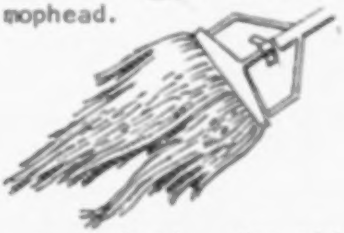
Don't store wet mops in contact with other equipment.



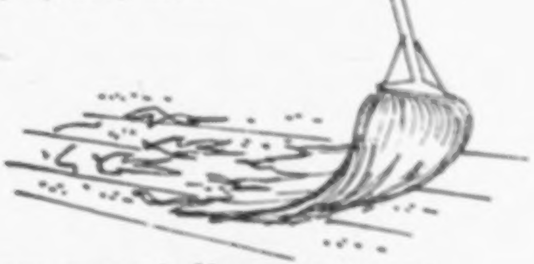
Rinse out wet mops immediately after use. Clean by first soaking in cleaning solution and rinsing thoroughly.



Never twist or squeeze mop very hard. Such action will break fibres and destroy mophead.

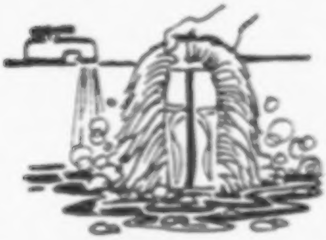


Replace worn mopheads. Use old heads to mop up oily dirt.

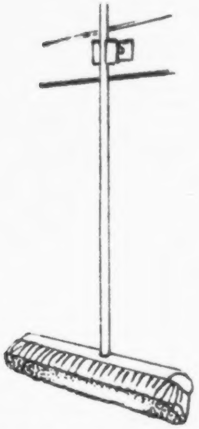


Use care on rough floors to prevent catching strings.

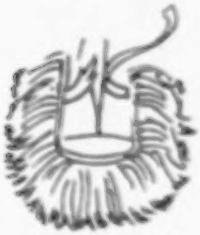
DUST MOP AND BROOM CARE



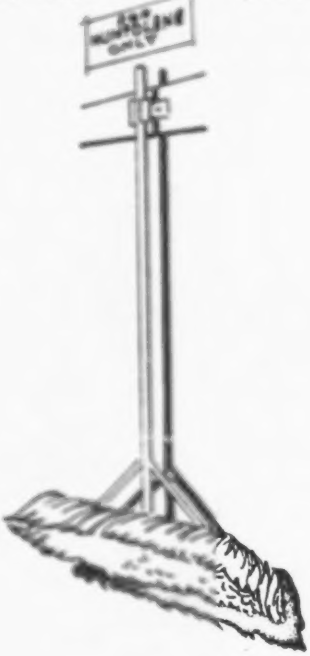
Clean mopheads when necessary. Soak in cleaning solution and rinse thoroughly.



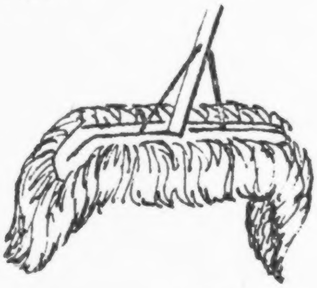
Always hang push brooms down to protect bristles.



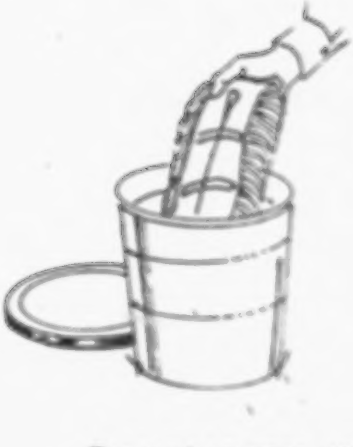
Repair or replace torn tie cords.



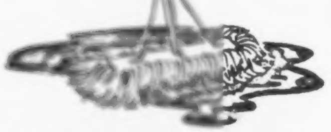
Label special dust mops.



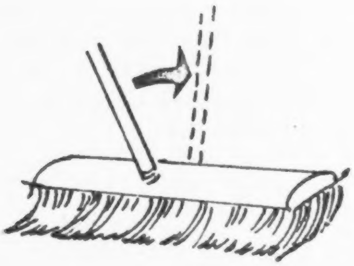
Choose proper size dust mop head for the block or frame.



Treat dust mops and leave overnight in closed metal container.

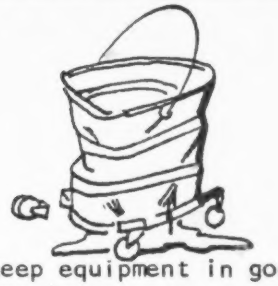


Don't use dust mops on wet or oily floors.

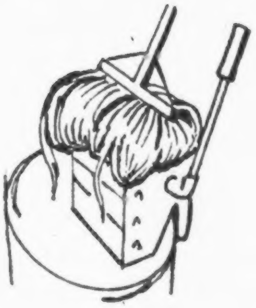


Change handles on push brooms periodically to alternate position and lengthen bristle life.

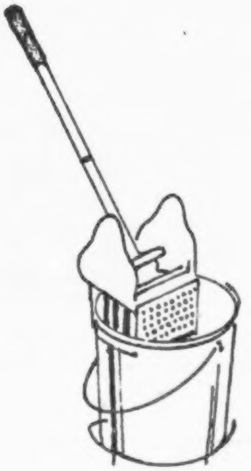
BUCKET AND WRINGER CARE



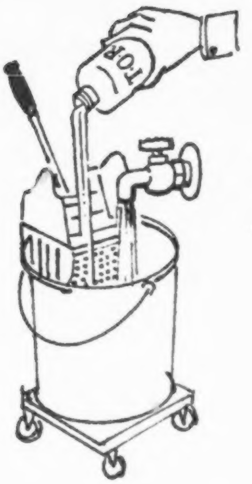
Keep equipment in good repair.



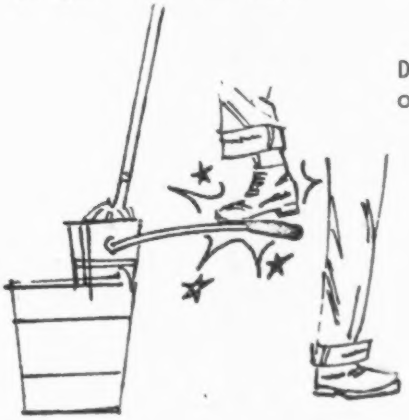
Use bucket and wringer of proper size for mop.



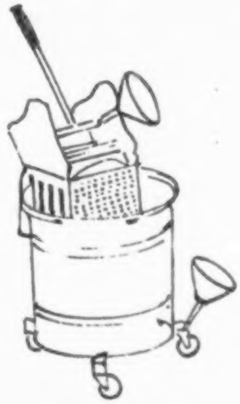
Don't lengthen handle of wringer.



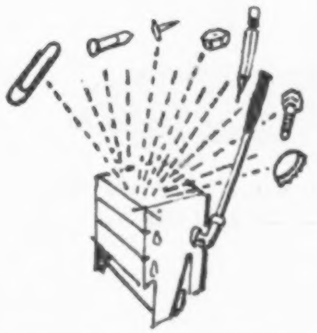
Clean buckets, tanks and wringers with germicidal detergents after each use. Dry well before storing, or store where they can dry as quickly as possible



Don't use force on wringer lever.



Keep parts oiled and tight.



Keep foreign matter out of wringer.

LIGHTING MAINTENANCE

Subject	Purpose	Teaching Pattern
Lighting Maintenance	To introduce various types of lighting.	1. Discuss artificial lighting: a. incandescent b. fluorescent 2. Discuss: a. quantity of light b. quality of light c. glare d. brightness ratio e. brightness control f. color schemes
Lighting	To introduce lighting in the field of maintenance and their types.	1. Discuss natural lighting: a. by sunlight b. large glass areas c. cleanness of room 2. Control of natural lighting: a. window shades b. venetian blinds c. draperies
	Learning to maintain and care of lighting fixtures	1. Discuss: a. light fixture cleaning b. replacement schedule of lamps c. tools and materials needed

Subject	Purpose	Teaching Pattern
		d. cleaning procedure e. safety 2. Special Activity: a. Give class test on all areas covered in lighting. b. Invite qualified speaker to class.

FLOOR AND RUG CARE

Subject	Purpose	Teaching Pattern
Floors	Introduce student to various floor types.	1. Discuss resilient floors: a. asphalt b. rubber c. linoleum d. cork e. vinyl f. homogenous vinyl g. sheet vinyl 2. Discuss wood floors: a. hardwood b. softwood c. block floors 3. Discuss masonry floors: a. ceramic b. concrete c. marble d. oxychloride e. terrazzo
Stains	Know-how of removing stains from floors.	Use attached sheet for teaching of stain removing from floors.
Rugs	To introduce rug cleaning	1. Discuss cleaning carpets and rugs: a. powdered cleaners b. cleaning fluids

Subject	Purpose	Teaching Pattern
		c. cleaning with detergents or shampoo 2. Professional cleaning services: a. plant cleaning b. on-floor cleaning c. dry cleaning

MAINTENANCE FLOOR CHART

KIND OF FLOOR	CLEANER TO USE	CLEANERS TO AVOID	FINISHES TO USE	FINISHES TO AVOID	SEALERS TO USE	SEALERS TO AVOID	OTHERS TO AVOID
ASPHALT	4-8-9-10.	2-3-4-6-7.	11-12-17	13-15-16	18-23	Naptha Type Sealers	Oils, Solvents, Alkalies
CERAMIC	1-2-3-4-8-9-10.	5-6-7.	11-12-17	13	None*	None*	Acids and Strong Alkalies
CONCRETE	All except 5 & 6	5 & 6	11-12-15 16-17.	13	All	None	Acids and Strong Alkalies
CORK*	4-8-9-10.	2-3-5-6	11-12-15 16-17.	13	19-20-22-25	None	Alkalies
LINOLEUM	4-7-8-9-10.	2-3-5-6	11-12-15 16-17.	13	18-23	All Others	Alkalies
MARBLE*	2-3-8-9-10.	1-5-6-7	11-12-17	13	23	Solvent Type	Acids, Alkalies and Harsh Abrasives
OXYCHLORIDE	2-3-4-8-9-10	5-6-7	11-12-15 16-17.	13	All	None	Acids and Strong Alkalies
RUBBER	2-4-8-9-10.	1-3-5 6-7.	11-12-17	13-15-16	23	All but 23	Oils, Grease
TERRAZZO	2-3-4-8-9-10	5-6-7	11-12-15 16-17	13	23	Varnish Types	Acids and Strong Alkalies
VINYL	2-3-4-8-9-10	1-5-6 7.	All except 13	13	23	Varnish Types	Strong Alkalies
WOOD	4-7-8-9-10.	2-3-5 6.	All except 13	13	19-20-22-25	None	Strong Alkalies

CLEANERS
1. Abrasive Powders*
2. Powdered Cleaners*
3. Sodium Metasilicate
4. Neutral Soap
5. Oily Dust Mops
6. Oily Floor Sweep
7. Solvent Type
8. Synthetic Detergents
9. Wax-Treated Dust Mops
10. Wax-Treated Floor Sweep

FINISHES
11. Wax Emulsion Finishes
12. Synthetic Emulsion Finish
13. Floor Oil
15. Solvent Liquid Wax
16. Solvent Paste Wax
17. Emulsion Paste

SEALERS
18. Alcohol Cut Resin
19. Alkyd Type
20. Bakelite Type
21. Terrazzo Sealer
22. Epoxy Type
23. Synthetic Water Emulsion
25. Urethane

MAINTENANCE FLOOR CHART (Continued)

*NOTE: For cleaning marble, sodium metasilicate should be used in solution of 1/2 to 1 ounce per gallon of hot water. Rinse thoroughly. Avoid use of abrasive cleaners with harsh or coarse aggregates or those containing ammonia concentrates or coloring material. Use of abrasive cleaners should be limited to occasional necessary scourings. Wax treated dust mops and wax treated floor sweep may be used on same floors. Sealers should be used on cork only when freshly sanded. Finishes with water vehicle should be used on wood only when the wood has been sealed. Preferences are not to be construed by above. Items indicated are simply adaptable, less suitable or objectionable. The alkalies recommended in the "Cleaner to Use" column are mild alkalies and are not injurious to the floor itself but when used on tile floors, especially the resilient floors, if too much solution is used it may seep down between the tiles and attack the adhesive. Continued use of alkali on Ceramic Tile is said to gradually cause disintegration of the grout. For terrazzo only a cleaner with a pH between 8 and 10 should be used for routine maintenance. Sealers on ceramic to be used for corrective or restorative purposes only.

REMOVING STAINS FROM FLOORS

Stain	Materials to Use in Removal
Writing Ink	Bleaches
Grease or Oil	Solvent
Gum	Putty Knife Solvent
Tar	Fat Solvent Solvent
Blood	Cold Water Ammonia
Iodine	Alcohol Acid Alcohol
Marking Ink	Dakin Solution Clorox Javelle Water
Printing Ink	Soap and Water Solvent
Argerol	Alcohol
Mercurochrome	Alcohol Acid Alcohol
Gential Violet	Tincture of Green Soap Acid Alcohol
Tincture of Benzoin	Ammonia
Rust	Lemon Juice and Salt Detergent Paste Oxalic Acid
Permanganate of Potash	Hydrogen Peroxide Acetic Acid
Indelible Pencil	Dakin Solution Clorox Bleach
Crayola	Solvent
Cigarette Burns	Steel Wool and Detergent
Heel Marks	Solvent
Chocolate	Soap and Water Alcohol Solvent
Fruit	Boiling Water Lemon Juice Dakin Solution

RENOVATION

Subject	Purpose	Teaching Pattern
Painting	Renew the building.	1. Discuss objectives of a good painting program: a. create a cheerful environment. b. promote visual efficiency and comfort. c. provide reflecting qualities which insure lighting efficiency. 2. Factors in paint selection: a. washability b. manufacturer's reputation. c. reflective power d. color, selection, etc.
Renovation	"Spring Cleaning"	1. Introduce the procedure of once a year renovation: a. present once-a-year duties of (1) Custodial Crew (2) Floor Crew (3) Maintenance Crew (4) Furniture Crew

Subject	Purpose	Teaching Pattern
General Decorating	Give general view of an allied field of Renovation.	1. Decorating a. color schemes b. fabrics c. arrangement of furniture 2. This unit may be covered on a general basis. Instructor may desire only to have a decorator from a department store or shop to speak on this subject. 3. Have class evaluate classroom and write essay on how they would renovate the room.

B. PRE-VOCATIONAL CORE COURSES

Health Occupations

MOTIVATION

Unit Objective

To motivate the individual sufficiently that he (or she) will pursue education for, or employment in, one of the health occupations.

Motivation

This unit is designed to expose the student to many occupations in the health and allied fields and to the people who are employed in these occupations. There will be many opportunities for you to see how these people act, talk, dress and work, and you will probably put yourself in the role of each employee you come in contact with. Somewhere in this exposure you may find and pursue that very special occupation which will bring happiness to you--bring to that occupation the greatest dignity, the highest standard of ethics and the largest measure of pride possible.

Upon completion of this unit the student will be able to:

(1) Collect pertinent information to introduce another student and give resume.

(2) Report to class on audio-visual material: "Survey of Health Occupations".

(3) Complete questionnaires in booklet and turn in to instructor.

(4) Make an interview list, use it in an assigned interview and report to class on a health occupation.

(5) Write a short paper entitled "WHAT DOES SOCIETY EXPECT OF ME?"

(6) Visit and then report to class on two health care facilities, giving special emphasis to the type of care and the various classifications of workers the facilities employ.

(7) Following a visit to a local hospital, the student will be able to verbally report to the class how each occupation they have observed relates to another.

(8) State incidents they have observed that have contributed to harmonious employer-employee relationships.

Objective	Content	Suggested Activities	Evaluation
Getting to know you	Introductions	Instructor introduce self. In groups of two each student will interview another student with purpose of finding out why the student is here and introducing him (or her) to the class and giving information regarding the student's background.	Students introduce the student interviewed.
Let's look at the people employed in the health occupations.	Health Occupations: 1. List occupations 2. Role of workers	Make a list of all health related occupations in booklet "Shed A Little Light On Your Career".	Discuss what students feel the major role of a person employed in each area would be. Survey of Health Occupations" Audio-Visual material in the library: 1. Each student assigned to an occupation. 2. Report to class on the assigned material.

Objective	Content	Suggested Activities	Evaluation
Let's look in the mirror!	Questionnaire from "Shed A Little Light on Your Career", pages 6, 7 & 8.	Complete questionnaire	Turn in booklets to instructor.
Let's have a closer look at the people employed in health occupations.	Personal contact with health and health-related occupations.	1. Students will devise a list of interview questions. 2. In groups of two, the students will interview two members of the health team. (The choice of interviewee will be determined by the previous assignment in audio-visual material, page 2, this unit.)	With use of student made interview list, the student will report to class on the assigned health occupations.
What does society expect of me?	Roles in the working world: 1. Men 2. Women	Invite speakers to visit class and talk about 1. The role of men in the society. 2. The role of women in society.	1. Discuss a. role of men b. role of women 2. Students to turn in to instructor a short paper entitled "What Does Society Expect of Me?"

Objective	Content	Suggested Activities	Evaluation
Let's visit many types of health care units.	Visit health care units: 1. Identify types of units. 2. Purpose of each 3. Classify employment in each.	In teams of two, the students will be assigned to visit two health care facilities (hospitals, public health agency, nursing home, doctor's office, dental office) to observe and collect information about those facilities.	Report and discuss in class the: 1. kinds of facilities 2. type of care 3. how many classifications of workers the unit employs
What makes a health care unit run smoothly? (People working together).		Students to visit a local hospital of own choice and collect information about how one occupation relates to another.	1. Students to report to class on hospital visit, telling how each occupation related to another. 2. How does the patient benefit from this attitude?
Contribute to harmonious employer-employee relationships	Employment in health field 1. Qualifications: a. Job skills & competencies b. Education c. Physical Health	Have students: 1. Review qualifications for employment in the health and allied fields which were stated on the questionnaire.	1. Share these qualifications after using audio-visual material (in library) "A Survey of Health Occupations".

Objective	Content	Suggested Activities	Evaluation
	d. Appearance & dress suitable for the job.	2. Bring illustrations to class of health personnel in various dress or uniform.	2. Critique illustrations and set up criteria for proper dress and grooming. 3. In visiting the health facilities, what have you observed that contributed to harmonious employer-employee relations?

OCCUPATIONS

Ambulance Driver

Dental Assistant

Diet Kitchen Worker

Hospital Housekeeping

Hospital Maintenance

Inhalation Therapist

Laboratory Assistant

Medical Records Clerk

Nurse Aide

Orderly

Psychiatric Technician

Registered Nurse

Vocational Nurse

X-ray Assistant

QUESTIONNAIRE: PERSONAL ATTRIBUTES

Please answer all questions truthfully, placing X in "Yes" or "No" column for answers.

	YES	NO
1. Are you more than ten pounds overweight?	___	___
2. Are you within five pounds of your normal weight?	___	___
3. Are you more than ten pounds underweight?	___	___
4. Are you considered to be the "nervous" type individual?	___	___
5. Do you like sports and outdoor activity better than indoor activity?	___	___
6. Do you spend leisure time mostly in reading, sewing, watching TV?	___	___
7. Do you get some outdoor exercise each day?	___	___
8. Do you "talk shop" (about patients, hospital, etc.) at the table?	___	___
9. Does it bother you to hear someone else talk shop at the table?	___	___
10. Do you usually refrain from talking at all while at the table?	___	___
11. Do you know the number of calories in one slice of bread?	___	___
12. Do you believe that being fat "runs in families"?	___	___
13. Do you often complain about the food served in your dining room?	___	___
14. Do you frequently eat between meals?	___	___
15. Do you attend "spreads" provided by other students and eat at night?	___	___
16. Do you attend gym classes with reluctance, and try to avoid them?	___	___
17. Do the heels of your shoes soon "run over?"	___	___
18. Do you feel that you walk gracefully and easily when on duty?	___	___
19. Do you (would you) complain if asked to work overtime?	___	___

	YES	NO
20. Do you feel a teacher is unfair if she gives a test without warning?	___	___
21. Do you dislike getting up early in the morning?	___	___
22. Do you brush your hair every night?	___	___
23. Do you shampoo your hair once each week, or about that often?	___	___
24. Is your hair always neatly arranged when you are in uniform?	___	___
25. Does it seem foolish to you that nurses must wear hairnets at times?	___	___
26. Does your hair fall below the collar of your uniform?	___	___
27. Have you ever worn jeweled clips or combs in your hair on duty?	___	___
28. Has a faculty member ever criticized your style of hairdress?	___	___
29. Have you seen other students whose hair style was incorrect for duty?	___	___
30. Does dark hair on your legs show through the white hose you wear?	___	___
31. Are your arms less attractive because of a heavy growth of hair?	___	___
32. Do you wear a moustache which is readily discernible?	___	___
33. Do you have "wild" hairs growing on your face, chin especially?	___	___
34. Do you take a bath each day?	___	___
35. Do you perspire under the arms enough to stain your uniform?	___	___
36. Do you use an anti-perspirant or deodorant each day?	___	___
37. Has anyone ever told you that you do offend with a body odor?	___	___
38. Do you perspire more when you become nervous or excited?	___	___
39. Have you worked with or sat beside in class, a student with body odor?	___	___
40. If you noticed body odor about a classmate, would you tell her?	___	___

	YES	NO
41. Would you wish to be told if you offended with body odor?	___	___
42. Does perfume have a stronger scent than cologne?	___	___
43. Do you wear perfume when you are in uniform?	___	___
44. Do you believe that perfume and toilet water can counteract body odor?	___	___
45. Should cologne be applied directly to clothing?	___	___
46. Do you dislike the smell of ether and antiseptics?	___	___
47. Are patients justified in complaints about antiseptic smells?	___	___
48. Do you wash your hands frequently when caring for patients?	___	___
49. Do you always wash your hands before going to a meal?	___	___
50. Do you chew your fingernails?	___	___

ANSWER KEY TO QUESTIONNAIRE: PERSONAL ATTRIBUTES

All answers which do not correspond with those given in the key represent areas in which improvement can be made. When both "yes" and "no" answer is given, either answer can be considered correct. If you answered "complaint" questions with "yes" more often than "no" it indicates faultfinding tendencies on your part.

1. No

2. Yes

3. No

4. No

5. Yes/No

6. No

7. Yes

8. No

9. Yes

10. No

11. Yes/No

12. No

13. No

14. Yes (if underweight)
    No (if overweight)

15. Yes

16. No

17. No

18. Yes

19. No

20. No

21. No

22. Yes

23. Yes

24. Yes

25. No

26. No

27. No

28. No

29. Yes

30. No

31. No

32. No

33. No

34. Yes

35. No

36. Yes

37. No

38. Yes

39. Yes/No

40. Yes/No

41. Yes

42. Yes

43. No

44. No

45. No

46. Yes/No

47. Yes/No

48. Yes

49. Yes

50. No

PERSONAL HEALTH AND CLEANLINESS

Unit Objective

To have the student learn personal health and cleanliness through the use of good grooming, proper nutrition, rest and exercise.

Motivation

Personal health inspires self-confidence, suggests careful work habits, creates personal satisfaction and pride. This unit is designed to bring into focus the need for personal health and cleanliness and to show its relationship to success in all fields of employment.

Upon completion of this unit the student will be able to:

(1) List nine points of personal cleanliness and good grooming.

(2) Describe verbally the basic principles of nutrition necessary for good health.

(3) Name the two classifications of exercise and their relationship to health.

(4) Name the two types of rest and state the need for each in maintaining good personal health.

Objective	Content	Suggested Activities	Evaluation
To have the student learn personal health and cleanliness through the use of good grooming, proper nutrition, rest and exercise		Teacher and student share objective for the unit Film: "Cleanliness and Health" MP0869	The student can: 1. Understand what is expected of him during the unit. 2. Pre-test optional
List nine points of personal cleanliness and good grooming.	Basic Need for: 1. Daily bath 2. Use of deodorants 3. Soap 4. Hair care 5. Nail care 6. Oral care 7. Proper use of makeup 8. Good posture 9. Neatness and appearance	Have students: 1. Discuss: a. Bath b. Deodorants c. Soap d. Posture 2. Invite cosmetologist to visit. 3. Invite beautician and barber to visit.	The students can: 1. Make a weekly chart showing amount of time spent on each point (on daily basis). 2. Ladies practice application of makeup with supervision of cosmetologist. 3. Gentlemen evaluate above.
List nine points of personal cleanliness and good grooming.		Invite dentist, dental assistant or dental hygienist to visit.	Have students: 1. Bring dental equipment to class and practice proper method.

Objective	Content	Suggested Activities	Evaluation
		Role playing fashion show.	2. Identify points about each model showing good or poor grooming.
Describe verbally the basic principles of nutrition necessary for good health.	Diets and food service 1. Basic principles of nutrition a. food elements b. basic food groups c. balanced meals d. Food misinformation. e. food and nutrient needs of different age groups.	Have students: 1. Survey a student group for "food fallacies"; form teams and investigate ways of recognizing accurate information. 2. Use flannel graph food models in planning meals using basic four guide. 3. Invite dairy council representatives Film: "Food that Builds Good Health" MP0626	The student can: 1. Include needed food from each group in total daily intake. 2. Fit foods from each group into types of meals plans for patients. 3. Relate food from different cultures to basic four food guide. 4. Consider likes & dislikes of patients. 5. Use foods in various forms and as prescribed. The student can describe how a balanced diet can be modified: 1. in consistency

Objective	Content	Suggested Activities	Evaluation
			2. in energy value 3. in limiting or emphasizing a single element
Define two types of exercise and their relationship to health.	Types: 1. Passive 2. Active Define: 1. Passive 2. Active	Have students: 1. demonstrate passive exercise. 2. demonstrate active exercise. Film: "How to Catch a Cold" MP0888	Relate value of exercise to maintenance of health.
Name two types of rest and state the need for each in maintaining good personal health.	Types: 1. Mental 2. Physical Define: 1. Mental 2. Physical	Discuss: 1. Mental rest 2. Physical rest	Have students: Relate conditions conducive to: 1. Mental rest 2. Physical rest

COMMUNICATION SKILLS

Unit Objective

To have the student develop an awareness of verbal and written communication, the reasons for communicating and the skills involved.

Motivation

This unit is designed to assist the student in understanding communication by exploring and experimenting with methods of communication. It is essential that everyone entering employment in the Health and allied fields understand the important role communications will play in their daily lives.

Upon completion of this unit the student will be able to:

(1) Verbally define and name three types of communication.

(2) Describe on paper the motivation for any/all aspects of communication.

(3) List ten of the most commonly used non-verbal expressions which contribute to communication.

(4) Name and discuss the six communication skills.

(5) Pass a performance test in the proper usage of the telephone.

(6) Make a list of errors in speech after listening to an unknowing group for ten minutes.

(7) Identify, on paper, five safety principles in obtaining information for records.

Objective	Content	Suggested Activities	Evaluation
Define communication.	Communication 1. Definition	Have students: 1. Over a period of a week, select an informal situation in which students or friends are communicating with each other for fifteen minutes or more; identify all the means used in communicating as well as what was communicated through group analysis and discussion. 2. Start glossary of terms for the course.	The student can define communication as: 1. An interchange or transfer of ideas. 2. A process requiring two or more people and the use of symbols. 3. A process whereby social interactions and social influence are achieved.
		Have students: 1. Use testing device such as "Can You Follow Directions?" and analyze responses as one by one the message gets through and "feed back" is evidenced.	The student can: 1. List the elements of a communication: a. Sender b. Content c. Channel d. Receiver e. Meaning given the message f. "Feed back"

Objective	Content	Suggested Activities	Evaluation
		2. Prepare an individual study on the following: a. Getting information from another person b. Giving information c. Giving simple verbal directions	2. Describe the motivation for any/all aspects of communication. (Any part of a communication is dependent on the desire of those involved to communicate.)
Examine types of communication.	3. Types a. Verbal b. Non-verbal 4. Difficulties a. Distractions and confusion b. Handicaps (1) Blindness (2) Deafness (3) Mental retardation (4) Mental illness (5) Age c. Confusing Messages d. Misuse of symbols	Listen to films or tapes demonstrating difficulties in communication. Follow by class discussion. Film: "Understanding and Communication" MP 0861. Have students work in small groups to consider as many aspects of non-verbal communication as possible. Identify also the verbal "hangups" in so doing.	The student can: 1. Identify ten of the most commonly used non-verbal expressions which contribute to communication. Small groups relate to the entire class aspects of communication and "hangups".

Objective	Content	Suggested Activities	Evaluation
Develop communication skills.	Communication skills 1. Observation 2. Listening 3. Speaking simply and clearly to individuals, families and groups. 4. Writing clearly and accurately 5. Reading with comprehension 6. Note taking a. accuracy b. importance	Have students: 1. Select several interview situations and develop guiding questions to get desired information or results. 2. Apply learnings from above to a health care situation by obtaining personal information from a patient. 3. Role play receiving and sending messages, face-to-face. 4. Read informational material and prepare several written memos demonstrating how to state directions clearly.	The student can evaluate himself: 1. How do I rank as a conversationalist? 2. Am I able to use silence effectively? 3. What aspects of observation could I improve on? 4. Do I try to guide conversation... when and why? Use self-evaluations as basis for helping students desiring to change or improve communication skills.
Develop skill in the use of the telephone.	1. Voice a. tone b. volume 2. Identify self 3. Courtesy	Invite telephone personnel to discuss proper use of phone.	Have student answer phone and check 1. Voice 2. Courtesy 3. Identify self 4. Take message

Objective	Content	Suggested Activities	Evaluation
			5. Relay message
Develop a concept of good vocabulary.	1. Good Grammar a. common errors in speech b. terminology c. spelling d. pronunciation e. meaning	Listen to films and tapes: Film: "English Language Patterns" MP 0692. Film: "English Language How It Changes" MP 1210. Follow with class discussion.	Listen to a group of friends talk for ten minutes and return with a list of errors in speech.

SAFETY

Unit Objective

To expose the student to areas of safety that must be learned and practiced in the hospital situation.

Motivation

This unit is designed to help the student recognize safety as something we practice many times daily, each day of our lives, until safety practices become habit. It is essential that students interested in hospital work be aware of the many types of safety he (or she) will practice in future employment.

Upon completion of this unit the student will be able to:

(1) Demonstrate what to do in case of fire in the classroom.

(2) Demonstrate what to do in case of fire in the hospital.

(3) In groups of two, role-play eight situations portraying safety practices within the hospital situation.

(4) List on paper, five out of eight incidents which could involve a hospital worker in a legal action.

(5) Critique a restaurant of choice for cleanliness in work areas with use of student made check list.

(6) Develop, on paper, a guide for care of work areas (in department of his choice) giving special attention to the safety aspect.

Objective	Content	Suggested Activities	Evaluation
Proper performance in event of fire in the classroom.	Role of student in event of a fire in the classroom.	1. Overhead projector with overviews showing evacuation routes for students from the classroom. 2. Visit by Fire Chief from local fire department.	1. Discussion of procedures. 2. Practice evacuation of classroom according to fire plan.
Proper performance in event of fire in the hospital.	Role of student and hospital staff in event of a hospital fire.	Field trip to a local hospital. Introduce directors of fire plan who will tell about the hospital fire plan and demonstrate evacuation procedures for patients.	Students return to classroom and discuss field trip.
Identify the legal factors which affect health team functions.	1. Legal practices of health team a. Protection of individual rights b. Records	Field trip to a local hospital to attend conference: "Legal responsibilities of hospital Workers".	The student can accept responsibility for own behavior, indicating acceptance of the following as essential to safe practices: 1. Coming to work situation rested and alert. 2. Accepting personal

Objective	Content	Suggested Activities	Evaluation
			liability for own actions. 3. Refusing to participate in criminal activity. 4. Practicing within assigned limits. 5. Acting to protect the patient's rights. 6. Acting as a reasonably prudent person in emergency situation. 7. Never giving legal or medical advice. 8. Accident report as a means of protecting: a. Patient b. Hospital c. Visitors d. Doctors e. Any/all other hospital and office personnel.

Objective	Content	Suggested Activities	Evaluation
			9. Proper identification of patients.
Identify the legal factors which affect health team functions.		Have students: 1. Review health records and note such items as date, signature, etc. 2. Role play possible causes for legal action against health care personnel, i.e., a. Negligence b. Assault and battery c. Malpractice d. False imprisonment e. Invasion of privacy f. Defamation of character g. Use of harmful drugs h. Practicing medicine, dentistry or nursing without a license	Return to class and discuss topics of conference. Discuss eight incidents most commonly involving hospital workers in legal action.

Objective	Content	Suggested Activities	Evaluation
Maintain cleanliness in work areas.	1. Personal habits a. washing hands 2. Work areas a. floors b. windows c. walls d. furniture e. equipment	Demonstrate method of washing hands, followed by student practice. Develop a checklist for cleanliness, student to visit restaurant of choice and critique.	Report to class on checklist, class discussion.
Identify practices for safe food handling.	2. Food handling a. selection & purchase. b. storage c. standards for handling. d. preparation of foods e. maintaining a clean, orderly kitchen.	Arrange a visit to dietary department in health care facility. Have dietician explain and demonstrate preparation of foods for patients, using sanitary methods in preparation, service and cleanup phases.	The student can: 1. Recognize the importance of safe food handling practices. 2. Identify common causes for food contamination and food-borne disease in relation to the following factors: a. Poor personal hygiene b. Ill health of employee c. Failure to refrigerate perishable foods

Objective	Content	Suggested Activities	Evaluation
			d. Failure to thoroughly cook food. e. Procuring food or water from unsafe sources. f. Failure to store foods so as to protect against contamination by rodents, sewage, etc. g. Failure to properly clean and disinfect utensils and equipment. h. Improper handling of leftovers.

DISEASE: CAUSES AND PREVENTION

Unit Objective

To have the students become aware of the cause, spread and prevention of disease.

Unit Motivation

Control of the spread of disease is very often the responsibility of the hospital worker. It is essential that you realize the importance of methods to prevent the spread of disease, employ these practices and teach others through your use of good example.

Upon completion of this unit, the student will be able to:

(1) List, on paper, six out of eight chief factors that contribute to disease.

(2) Describe relationship between exposure to disease and immunity.

(3) Describe, in class, one method of destruction of microbes that he (or she) has seen in assigned visit to the hospital.

(4) Demonstrate proper hand washing technique.

(5) State, verbally, the importance of providing a safe, clean patient environment.

(6) Brainstorm ways in which environmental control can be achieved, and then state how each point relates to the comfort and safety of the patient.

(7) Develop, on paper, a guide for care of work areas, focusing on cleanliness.

(8) Name four common causes of contamination of food.

Objective	Content	Suggested Activities	Evaluation
Identify chief factors that contribute to disease	Eight chief factors a. Microorganisms b. Body deformities and abnormal functions c. Improper nourishment d. Trauma due to accidents e. Poisons and poisoning f. Housing as related to health and disease g. Heat and cold as related to illness h. Heredity	Field trip: To local public health department for conference on methods and facilities to help improve community living.	Report to class on field trip. Class discussion on all eight factors.
Describe immunity and its importance.	Immunity: 1. Natural a. Species b. Racial c. Individual 2. Acquired a. Passive b. Active	Have students: 1. Chart those communicable diseases for which immunity may be obtained, indicating those diseases for which the student has immunity.	The student can describe the relation between exposure to disease and immunity. Quiz.

Objective	Content	Suggested Activities	Evaluation
		2. Film: "Defense Against Invasion" MP0917 3. Follow by class debate: "Which is better, immunization or the use of antibiotics?" 4. Complete glossary of terms for the unit.	
Prevent spread of infection	Antimicrobial methods 1. Destruction of microbes.	Survey antimicrobial methods used in community health by review of literature, visiting different laboratories and local health facilities. Film: FS #2269	The student can discuss how microbes can be destroyed by the following methods: 1. Heat a. Dry b. Wet c. Steam d. Pasteurization 2. Chemical methods
Maintain asepsis in work areas.	1. Environmental control a. Personal habits (1)Washing hands (2)Proper dis-	Demonstrate method of washing hands, followed by student practice. Develop guide checklist for maintaining "Medical Asepsis."	Students can: 1. Return demonstration on handwashing satisfactorily after sufficient practice.

Objective	Content	Suggested Activities	Evaluation
	posal of human wastes. b. Environmental barriers to hosts. c. Sanitation 2. Definitions: a. Asepsis b. Medical Asepsis c. Surgical Asepsis	Display supplies used for safe removal of contaminated articles from patient's room. Develop a checklist for environmental sanitation. Critique a home or shopping center and share results in class discussion. Have student: 1. Describe how sanitation may be achieved in work areas such as: a. Regulated water and food supply b. Food correctly stored c. Washing dishes correctly d. Maintaining cleanliness of surroundings. Invite central supply nurse to speak about disinfection and sterilization for surgical purposes.	2. Describe how transfer of disease can be prevented by: a. Screen windows b. Store garbage correctly c. Spray pests d. Set traps 3. Visit central supply in hospital of your choice and report to class.

Objective	Content	Suggested Activities	Evaluation
Provide a safe and clean patient environment.	Patient environment 1. Purpose for cleanliness a. Create pleasant atmosphere b. Prevent spread of infection 2 c. Reduce infection potential d. Morale factor 2. Efficient care of patient's unit a. Steps in cleaning unit b. Steps in disinfecting a room.	Show film on medical asepsis depicting steps & processes of cleaning and sanitizing household and health agency patient and work units. Follow by discussion of the importance of providing a sanitary environment in patient care units. Schedule practice periods in simulated laboratory for students, rotating responsibilities for housekeeping functions.	The student is able to state the importance of accomplishing the following: 1. Minimize dust circulation 2. Perform tasks quietly and quickly 3. Avoid bumping or jarring bed. 4. Plan work to protect patient.
Check and adjust environmental factors	4. Environmental factors a. Ventilation b. Temperature c. Lighting	Show film or filmstrip depicting adjustment of environmental factors. Have students "brain storm" ways in which en-	The student can recognize effect of environmental factors on comfort and safety of patient in relation

Objective	Content	Suggested Activities	Evaluation
	d. Quiet e. Odor-free f. Screens, bed, signal, bedside table arranged for comfort, convenience and safety.	vironmental control can be achieved.	to: 1. Maintaining appropriate room temperature. 2. Providing sufficient body and bed clothing. 3. Adjusting placement of patient 4. Working quietly 5. Removing sources of unpleasant odor 6. Adjusting screens and windows and lights.
Provide and maintain clean and safe work areas.	Work areas and equipment items 1. Sanitation a. Sterilizers b. Sinks c. Hoppers 2. Food Service a. Refrigerator b. Sinks c. Range d. Utensils e. Dishwashing Equipment	Invite an equipment company representative to demonstrate types of equipment which may be located in the hospital laboratory or nursing home work units. If possible have demonstrations by the representative in a local health facility. Have students summarize observations and	The student can develop guide for care of work areas to include: 1. Washing and scrubbing work surfaces daily and as necessary. 2. Cleaning surrounding walls weekly. 3. Scrubbing storage shelves regularly.

Objective	Content	Suggested Activities	Evaluation
	3. Storage and work areas a. Counter tops b. Clean storage units c. Sterile storage units	practice of general cleaning procedures and special techniques for individual items.	4. Dismantling, cleaning and assembling equipment. 5. Oiling equipment when necessary. 6. Reporting needed repairs.
Identify practices for safe food handling.	1. Food handling a. selection and purchase b. Storage c. Standards for handling d. Preparation of food e. Maintaining a clean orderly kitchen	Arrange a visit to dietary department in a health care facility. Have dietician explain and demonstrate preparation of foods for patients, using sanitary methods in preparation, service and cleanup phases.	The student can: 1. Recognize the importance of safe food handling practices. 2. Identify common causes for food contamination and food borne disease in relation to the following factors: a. Poor personal hygiene b. Ill health of employee c. Failure to refrigerate perishable foods d. Failure to thoroughly cook food

Objective	Content	Suggested Activities	Evaluation
			e. Procuring food or water from unsafe sources f. Failure to store foods so as to protect against contamination by rodents, sewage, etc. g. Failure to properly clean and disinfect utensils and equipment h. Improper handling of leftovers.

HEALTH TEAM RELATIONS

Unit Objective

To have the student develop an awareness of the relationship of Health team members working toward the same goal.

Motivation

This unit is designed to assist the student in understanding and establishing his (or her) future role as a health team member. In order to perform your job in an ethical, intelligent and effective manner it is necessary that you learn to harmoniously function as a member of the health team.

Upon completion of this unit the student will be able to:

(1) Demonstrate by portrayal harmonious employer-employee relations with less effective practices by means of role-playing.

(2) Show by performance in the classroom ethical behavior practices related to the health team.

(3) Contrast outcomes of harmonious employer-employee relations with less effective practices by means of role-playing.

(4) Discuss in class the relationship of authority to communication.

(5) Identify, on paper, ethical practices for health care personnel.

(6) Discuss health team relationships regarding leadership and member roles.

(7) Identify in discussion eight legal factors which affect health team functions.

(8) Assist in achieving goals in health care by verbally relating five of the responsibilities of team members.

Objective	Content	Suggested Activities	Evaluation
Contribute to harmonious employer-relations.	1. Laws and regulations: a. Working hours b. Wage and salary standards c. Unemployment insurance d. Workmen's compensation e. Social security f. Consumer protection laws g. Anti-discrimination laws and practices	Have students: 1. Bring illustrations from literature describing working conditions prior to enactment of protective laws and regulations. 2. Invite speaker, possibly social studies teacher or employment office representative to talk about the continuing struggle for better working conditions and safety devices.	The student can: 1. Demonstrate awareness of the laws and regulations he/she will need to explore in making job inquiry and application. 2. Relate how awareness of the laws and regulations contribute to harmonious employer-employee relations.
	2. Fringe benefits a. Vacations with pay b. Pension, bonus, profit-sharing plans c. Cooperative insurance d. Group life insurance e. Employment associations	Plan a panel of local health care employers to answer questions concerning fringe benefits. Have class prepare by referring to library sources, asking parents for information and formulating questions for the panel.	As part of self-assessment, have the student consider the possible "fringe benefits" of a student in college and whether these benefits have any influence on his/her performance as a learner.

Objective	Content	Suggested Activities	Evaluation
	Employer-employee team 1. Employer practices affecting the employee a. Policies for employment b. Working conditions c. Staffing d. Staff development program.	Invite a hospital or nursing home administrator or personnel officer to discuss employer practices and why he/she believes these do affect the employee.	Encourage students to discuss teacher practices and how they affect the class as part of an evaluation process.
Practice ethical behavior in performance of organizational activities.	2. Employee practices affecting employer a. Loyalty to employer b. Interest in optimum job performance c. Participation in employee organizations d. Acceptance of facility standards and operational procedures	Obtain staff rating sheets from hospitals and nursing homes. Show on opaque projector to stimulate discussion of performance evaluation.	The student can discuss individual student behavior in relation to effects upon total group performance and ability to solve problems.

Objective	Content	Suggested Activities	Evaluation
Contrast outcomes of harmonious employer-employee relations with less effective practices.	3. Outcomes of harmonious employee relations.	Show cartoons, drawings, etc., using opaque projector, to show employer-employee relations and as a springboard for discussion of benefits of a harmonious relation.	The student can contrast outcomes of employer-employee relations in terms of the following factors: 1. Degree of job satisfaction 2. Level of production 3. Contribution to economy 4. Contribution to respect self and others
Make necessary communications through proper channels.	Channels that facilitate organization a. Authority (1) Institution (2) Agency (3) Office (4) Home b. Communication (1) Formal (2) Informal	Have students: 1. Collect information on levels of authority and how determined in different situations; present findings to class and discuss relationship of authority to communications.	The student can: 1. Trace channels of authority and communication using organizational charts. 2. Demonstrate use of good telephone technique by: a. Giving greeting courteously

Objective	Content	Suggested Activities	Evaluation
		2. Practice answering telephone, properly identifying self and location.	b. Identifying self c. Identifying location d. Recording time of call, caller, message e. Repeating message to ensure accuracy
Identify ethical practices for health care personnel.	Ethical practices of health team: a. Extend courtesy in all activities b. Greet patients, visitors, guests pleasantly c. Stay on duty until relieved d. Respect privacy of patient and family e. Respect religious belief of patients f. Keep patient and facility information confidential	Have students: 1. Role play several situations: a. Portraying correct and incorrect action of supportive personnel. b. Depicting effect of idle chatter, etc. in work situations.	Test students (pencil and paper test) on ability to identify as many observable behaviors as possible that would be acceptable evidence of ethical team practices in the classroom. Follow by discussion to provide feedback for teacher and students regarding understanding of ethical team practices gained by the class.

Objective	Content	Suggested Activities	Evaluation
	g. Carry out instructions of supervisor when help needed or if unsure of what to do i. Question orders when not clear j. Give care with out discriminating due to race, creed, color k. Accept no money or gifts from patients l. Report all observations to appropriate persons		
Develop concept of professional and supportive roles for health team members.	Team membership a. Leadership b. Member roles	Show film depicting the importance of the health care team. Follow with student led discussion of the functions of professional and supportive team members..."Who makes the decisions, and what kind?"	Recognize that: a. Leadership and membership is essential b. Members have different roles, not lesser or greater than others.

Objective	Content	Suggested Activities	Evaluation
Identify the legal factors which affect health team functions.	Legal practices of health team a. Protection of individual and public rights b. Records, orders, charting	Have students: 1. Review health records and note such items as date, signature, etc. 2. Role play possible causes for legal action against health care personnel, i.e., a. Negligence b. Assault and battery c. Malpractice d. False imprisonment e. Invasion of privacy f. Defamation of character g. Use of harmful drugs h. Practicing medicine, dentistry, or nursing without a license.	The student can accept responsibility for own behavior, indicating acceptance of the following as essential to safe practices: 1. Coming to work situation rested and alert 2. Accepting personal liability for own actions 3. Refusing to participate in criminal activity 4. Practicing within assigned limits 5. Acting to protect the patient's rights 6. Acting as a reasonably prudent person in emergency situation 7. Never giving legal or medical advice

Objective	Content	Suggested Activities	Evaluation
			8. Providing a written legal record
Assist in achieving goals in health care	Responsibilities of team members a. Become oriented to group or team goals b. Help organize information c. Offer suggestions d. Indicate if not in agreement e. Ask for clarification f. Accept feelings as useful guide g. Demonstrate friendly, open, supportive attitude.	Guide discussion to a consideration of the need for avoiding competitive struggle and giving preference to "What is best for us to do in this situation?" Have students work in teams toward several teacher stated goals. Assign two observers to each team to record what happens in the team.	Two observers report to class on activity. Were goals met? Have class members identify the possible barriers to team action, i.e., taking sides, one-sided or apathetic participation.

PATIENT RELATIONS

Unit Objective

To have the student develop attitudes of ethical conduct, personal responsibility and helpfulness to patients through understanding the characteristics and influences of behavior and the necessity of public relations practices.

Motivation

This unit is designed to show the means for acquiring the personal responsibility, understanding or behavior, ethics and attitudes necessary for maintaining good patient and public relations. It is necessary that all persons who work in hospitals, medical and dental offices be aware of the need for good patient and public relations.

Upon completion of this unit the student will be able to:

(1) Communicate a helping attitude in assisting patients with health-related activities.

(2) Define behavior by means of discussion and role-playing activity.

(3) Verbally identify the characteristics of behavior as being personal, purposeful, capable of change and governed by multiple factors.

(4) Write examples of four out of six factors which influence behavior and summarize outstanding behavior of each age group.

(5) List on paper four common behavior problems and give a basic approach to each of these problems.

(6) Verbally relate human rights to personal responsibility and ethical conduct.

(7) Discuss the benefits of good public relations practices to patients and health facilities.

Objective	Content	Suggested Activities	Evaluation
Communicate a helping attitude in assisting patients with health-related activities.	Communication through assistance.	Have students visit nursing homes to observe how nursing personnel communicate with patients. Follow by talking with patients to validate how they feel about being assisted and about what is happening to them. Use reports of findings as basis for group discussion.	The student is able to communicate a helping attitude, using the following guides: 1. Purpose of assistance 2. Importance of self-dependence 3. Importance of accepting patient at his present level of functioning. 4. Observation of patient for cues that may lead to reduction of anxiety and appropriate withdrawal of assistance. 5. Explanation of procedures (what is going to happen) in simple basic terms.

Objective	Content	Suggested Activities	Evaluation
Define behavior.	Behavior 1. Definition	Divide class into small groups to identify and discuss how needs are expressed in behavior. Have students role-play behavior 1. to help or assist others 2. which is harmful to self and others	Relate information that transpired to entire class. Evaluate role-play.
Identify the characteristics of behavior.	Characteristics	Have students note their own behavior for a day. Follow by individual analysis leading into group discussion: "Can behavior be changed? When and how?"	The student is able to identify the characteristics of behavior as: 1. Having personal or individual meaning 2. Being purposeful to the person 3. Being capable of change 4. Being governed by multiple factors, internal and external.

Objective	Content	Suggested Activities	Evaluation
Describe factors which influence behavior.	Causes of different behavior.	Ask students to suggest a number of impersonal friendly topics for conversation with classmates of various age groups. Use suggestions as basis for student-led discussions. Have students: Consider such key points as showing respect for others, refraining from prying and respecting privacy of others.	The student can: 1. Describe factors causing different behavior: a. Heredity b. Physical health c. Mental health d. Family background e. Religious beliefs f. Age 2. Describe the outstanding behaviors of each age group: a. Children b. Youth c. Adults d. Elderly Quiz(optional)
Assist with management of common behavior problems.	Working with patients 1. Dealing with patients who are a. Moody b. Suspicious c. Lonely, introverted	Have students role play in situations depicting behavior problems occurring in life. Follow each presentation by identifying basic techniques which might	The student can: 1. Use the following guide for assessing own ability to achieve change of behavior in others.

Objective	Content	Suggested Activities	Evaluation
	d. Inadequate, unproductive e. Antisocial f. Fearful, anxious g. Chronic complaining h. Anxiety associated with high cost of health care.	be used for improved relations and management. Include discussion of handling complaints about hospital policies and high cost of medical or dental fees or any other situation that creates a problem for recipient services.	a. Did the other person get the message? b. Did I validate the response? c. Did I get the desired behavior? d. If I did not, was I able to change my own behavior and try again? 2. Describe or list the common behavior problems and give a basic approach to the person with these problems.
Describe ethics of patient care.	Ethical conduct.	Have students seek information from various sources and library references about human rights and make reports relating these to the individual differences	The student is able to relate human rights to personal responsibility and ethical conduct: 1. For self-health care

Objective	Content	Suggested Activities	Evaluation
		of patients. Reports should reflect respect for patients' rights for religious belief: 1. Food and drink 2. Baptism 3. Communion 4. Circumcision 5. Last rites 6. Observance of religious days. 7. Others	2. For health care of others, including emergency first aid. 3. For own mental health as provider of health or health care.
	Personal and ethical conduct with persons related to patient.	Have students role play any number of situations in which stressful relations may develop between personnel and patient's family or visitors, i.e., 1. Patient who complains that he is being neglected 2. Patient complains of being forced to do something against his will.	The student can: 1. Select and seek appropriate experiences in relation to this objective 2. Deal effectively with anxiety in stressful situations 3. Evaluate the experiences in this unit in

Objective	Content	Suggested Activities	Evaluation
			relation to the following guide questions: a. Did they promote personal growth? b. Did they promote ability to relate with families and visitors? c. How might these experiences have been altered to be more meaningful and beneficial?
Demonstrate good public relations practices.	Public relations practices.	Divide class into small groups. Have students: 1. Practice introducing themselves to patients nurses, dentists, physicians, and others (simulated). Follow by student-led discussion on alternative	The student can describe the benefits of good public relations practices: 1. To health facilities: a. Promotes good reputation b. Generates ac-

Objective	Content	Suggested Activities	Evaluation
		approaches in difficult or awkward situations.	ceptance of cooperation reaction c. Reduces hazards and confusion d. Creates beneficial atmosphere 2. To patients: a. Relieves tension b. Encourages acceptance of health care c. Provides feeling of belonging and security.

FILM SHEET

The following films are available through Tuolumne County Schools, Sonora, California.

MP 1210 ENGLISH LANGUAGE, HOW IT CHANGES UH 11 min. color
Contrasts the writings of Capt. John Smith, Webster's of 1828, with recent additions to our language. Changes in spelling, pronunciation, meaning and grammar make our language alive and a useful tool for communication.

MP 0692 ENGLISH LANGUAGE PATTERNS UH 11 min. color
Patterns of usage - vocabulary, pronunciation, dialect and construction vary in different regions according to individual and cultural groupings and the situation.

MP 0861 UNDERSTANDING AND COMMUNICATION P 9 min. color
There is more to communication than just words. Sounds and movements also have meaning. We put several factors together to achieve understanding.

MP 0869 CLEANLINESS AND HEALTH I 11 min. color
Because germs require food, warmth and moisture, we can control germs by removing one or more of these conditions. Bodily cleanliness helps to preserve our health.

MP 0626 FOOD THAT BUILDS GOOD HEALTH IU 11 min. color
When the mother is called out of town, two children assume responsibility for preparing nourishing and interesting meals. They learn about the four groups: meat, milk, cereal and vegetables.

MP 0888 HOW TO CATCH A COLD PIUH 11 min. color
In animation, this film tells the story of a man who works and plays until his bodily resistance is lowered by exhaustion. At a dance, he catches a cold. Common rules for the care of a cold are shown.

MP 0917 DEFENSE AGAINST INVASION PI 16 min. color
Explains the necessity for vaccination. The body is shown as a huge city filled with little workers on the highways of the bloodstream. Vaccination is described as a fake invasion which causes the factories of the body to prepare for battle.

The following filmstrips are available through the Department of Education, Stanislaus County, Modesto, California.

FS 2269 THE HOSPITAL UNIT H6-G 42 fr. B & W
Step-by-step directions for cleaning a hospital room (Simple Nursing Series).

FS 1353 YOURS FOR THE BEST H6-F 44 fr. color
Provides an evaluation chart on work ability, shows how to plan work for best use of time, and how to develop wider interest and conversational ability. (A Better You Series).